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Energy and Mines
Geological Services

Mineral Deposit Series Report No. 19

Mineral Deposits and Occurrences in the Batty Lake Area, NTS 63N/2

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MAP

MDS Map 19: Mineral deposits and occurrences in the Batty Lake (63N/2) area, Manitoba; 1:50 000 . . . . . in pocket

INTRODUCTION

This report and accompanying map (MDS Map No. 19) are part of a Mineral Deposit Series presenting a uniformly organized and up-to-date collation and analysis of information on mineral occurrences in the Province of Manitoba. The series is intended: (1) to provide explorationists with a geoscientific data base that can be used in mineral exploration; and (2) to provide a technical data base for other government users in resource evaluations, formulation of mineral and land use policies and the initiation of regional development programs.

The mineral deposit report and accompanying map are intended to be active documents that can be updated as new information becomes available. Although revisions of the publication are anticipated, any additional unpublished information may be obtained by contacting the author or Director, Geological Services Branch.

METHODOLOGY

The documentation program was initiated in the main mining districts of the province under the 1984-1989 Mineral Development Agreement. Under this project mineral deposit geologists of the Geological Service Branch have attempted to inspect and evaluate each known Mineral occurrence. These site visits ranged from a preliminary half day or less search of an area for old workings, to extensive geological mapping of selected occurrences for a week or more. In addition, for each occurrence the geologists have attempted to synthesize available data from published and unpublished sources. The Manitoba Mineral Inventory Card index and the cancelled Assessment Files have been used extensively in the preparation of the report. Mineral occurrence documentations representing only cancelled assessment file compilations are identified as such under the heading 'Name'. Information for all other occurrences was acquired primarily by field examination and are commonly supplemented by cancelled assessment files and/or company files.

Information has been collated and maps prepared with the assistance of junior staff geologists and summer assistants. Senior mineral deposit geologists have provided the deposit classifications and text for the report. The locations of all mineral deposits and occurrences are presented in Figure 1.

Deposit vs Occurrence

Throughout this report mineralization is referred to as a deposit if tonnage and grade figures are known; all other mineralization is referred to as an occurrence.

Massive sulphide vs solid sulphide

The use of 'massive sulphide' in the geological literature is confusing in that it is not always clear whether the authors are referring to a 'massive sulphide deposit' (*cf.* Sangster, 1972) or a section of sulphide-rich rock. In this publication 'massive sulphide' will be used in reference to a deposit type, i.e. a volcanogenic massive sulphide deposit type, rather than the nature of the mineralization. A volcanogenic or sedimentogenic massive sulphide deposit can contain a sulphide lens that locally contains as little as 10% sulphide minerals by volume. The alteration zones that are an integral part of many sulphide deposits, or the only portion remaining, rarely contain more than 50% sulphide minerals. Consequently, the use of 'solid sulphide' for 75% to 100% and 'near solid sulphide' for 50% to 75% sulphide minerals is adopted in place of the commonly used term 'massive' to describe the textural aspects of a sulphide mineralization.

FORMAT OF MINERAL DEPOSIT MAPS

Location:

One of the incentives spurring the mineral deposit documentation was the absence of accurate location maps for known mineral occurrences. Inaccurate land bases have previously resulted in failure to find old workings, surveys conducted in the wrong areas, and even cancellation of intended surveys by explorationists. Consequently, considerable field time has been spent in establishing occurrence locations and attempts have been made to display exact locations both on the map and in the accompanying report.

The location number on the map is a unique reference number that will be used both in the report and the geologists' unpublished data base. These numbers are consecutive within each 1:50 000 NTS map sheet (but not within portions of a map sheet such as Map MDS87-1).

Deposit Types:

In order to maintain a mineral deposit classification, which will be useful to both explorationists and metallogeneticists, a simplified descriptive classification was selected. This classification is based on the use of common deposit types for the classification of both deposits and occurrences. The classification of mineralization is based on the premise that the mineral explorationist requires information on metals and types of mineralization in an area as well as on the economic deposits (past, present and future producers).

All deposits and occurrences are classified according to the Deposit Type classification in Table 1.

The deposit type displayed on the map represents the mineralization with the greatest economic potential, for example a disseminated narrow chalcopyrite layer is emphasized rather than a much thicker solid pyrite-graphite layer.

Mineralization:

A symbol is used to denote the percentage and/or type of mineralization present. At some localities more than one type of mineralization is present. The type of mineralization displayed in the symbol represents the mineralization with the greatest economic potential as

indicated by the deposit type symbol. It should be noted that in the context of this report a "sulphide facies iron formation" is equivalent to a "sulphide stratum". For a discussion of sulphide stratum the reader is referred to Gale *et al.* (1980).

TABLE 1. MINERAL DEPOSIT TYPES

STRATABOUND MASSIVE SULPHIDE TYPE DEPOSITS
- a) Volcanic rock associated
- b) Sedimentary rock associated
- c) Alteration zone associated with a or b

CHEMICAL SEDIMENT TYPE DEPOSITS
- a) Sulphide facies iron formation
- b) Oxide facies iron formation
- c) Carbonate facies iron formation
- d) Silicate facies iron formation
- e) Other chemical sediments

VEIN TYPE DEPOSITS
- a) Single vein
- b) Multiple veins or lenses
- c) Stockwork

MAGMATOGENIC TYPE DEPOSITS ASSOCIATED WITH MAFIC/ULTRAMAFIC ROCKS
- a) Disseminated
- b) Layered
- c) Net textured
- d) Podiform

DEPOSITS WITH PORPHYRY AFFINITIES
PEGMATITE TYPE DEPOSITS
CLASTIC SEDIMENT TYPE DEPOSITS
REPLACEMENT TYPE DEPOSITS
DISSEMINATED MINERALIZATION - NOT CLASSIFIED

Host Rocks:

In general, this description refers to the immediately underlying and overlying rock types. When a number of rock types are present in an extensive zone of mineralization, the most common rock types are indicated.

Elements:

This description allows for a maximum of three metals present in increasing order of abundance by volume. The precious and base metals are indicated, if present, in preference to elements such as iron and carbon.

In some instances it has been more efficient on the map and in the report to make reference to an area of mineralization rather than individual deposits or occurrences. All mineralization in the area delineated by a dotted line on the map is referenced in the report under the location number within that area.

FORMAT OF MINERAL DEPOSIT REPORTS

Location:

Each deposit or occurrence description will contain the unique deposit reference number, deposit or claim name where applicable, UTM coordinates, general area description, the reference number of the airphoto on which the deposit can be located and a brief description of method(s) of access. Where an occurrence is known solely from diamond drilling the name of the occurrence will state 'Mineralization intersected by diamond drilling'.

Exploration Summary:

This section provides an idea of the extent of exploration. The information was compiled from Mineral Inventory Cards, cancelled Assessment Files, and maps and files from the Mining Recording office.

Geological Setting:

In this section the general geology of a deposit or occurrence is described. The information levels of the descriptions vary considerably and depend largely upon the extent of geological mapping during the documentation project. For further details the reader should consult the references cited.

Mineralization:

A detailed description of the mineralogy, host rocks and alteration provides the reader with the opportunity to make their own evaluation of the significance of a mineral occurrence or deposit.

Geochemical Data:

In addition to detailed geological mapping around individual mineral occurrences rock samples were collected from trenches and outcrops in the vicinity of the occurrences. Selected assay and geochemical data may be included in this section. Multi-element analyses are presented in Appendix I for 174 rock samples. Silicate whole rock analyses are presented in Appendix II for 109 rock samples.

Classification:

In this section the geologist may indicate the reasons for the classification appearing on the Mineral Deposit Map. For those localities containing more than one deposit type, the deposit types not shown on the map are documented here.

References:

These include both published and unpublished sources. For published and assessment report information the reader should obtain desired material directly form the source. The mineral deposit geologists will endeavor to supply copies of unpublished material on a deposit by deposit basis. References listed at the end of each occurrence description may also include sources of additional information not directly cited in the text.

ABBREVIATIONS

The following abbreviations are used throughout the occurrence descriptions:

A.F.	assessment file
aka	also known as
apy	arsenopyrite
ay	anthophyllite
bt	biotite
cc	calcite
cd	cordierite
CEM	Crone electromagnetic
cf.	compare (Latin)
ch	chlorite
Co.	company
cp	chalcopyrite
DDH	diamond drill hole(s)
EM	electromagnetic
fd	feldspar
gf	graphite
gt	garnet
g/t	grams per tonne
hb	hornblende
HBED	Hudson Bay Exploration and Development Company Limited
HBM&S	Hudson Bay Mining and Smelting Company Limited
HLEM	horizontal loop electromagnetic
Ltd.	limited
M.I.C.	Mineral Inventory Card
ms	muscovite
mt	magnetite
Mt	million tonnes
oz/ton	ounces per ton
po	pyrrhotite
ppb	parts per billion
ppm	parts per million
py	pyrite
qz	quartz
sl	sillimanite
VLF-EM	very low frequency electromagnetic

Conventional symbology is used for elements.

ACKNOWLEDGEMENTS

Throughout the five year term of the project junior staff geologists and senior geological assistants participated in: 1) collection of field data; 2) extracting data from cancelled assessment files; 3) data compilations; 4) directing of field camps; and 5) preparation of summary reports published in the annual Report of Field Activities.

The figures that appear in this report of the Mineral Deposit Series have been reproduced from previously published documents with exception of those figures that contain data provided by Ted Baumgartner of HBED. The figures were prepared by Eric Su (Autocad) under the guidance of Roy Eccles, Manitoba Energy and Mines, Geological Services Branch. Clayton Sandy, Chester Wojciechowski and Ed Truman, Manitoba Energy and Mines, Cartographic Services, drafted the accompanying map. Technical review of the manuscript was provided by G.H. Gale. Editing was provided by D.A. Baldwin.

GENERAL GEOLOGY OF NTS 63N/2

The geological base for MDS Map No. 19 is taken from the 1: 50 000 geology map of Zwanzig *et al.* (1988) including subsequent revisions by H. Zwanzig (personal communication) plus detailed 1:5 000 mapping at selected areas by Ostry (1986, 1988).

The map area is situated near the south margin of the Churchill structural province of the Precambrian Shield in Manitoba and underlain by supracrustal and intrusive rocks of the east-trending Proterozoic Kisseynew gneiss belt. Robertson (1953) divided the supracrustal rocks in the Batty Lake map sheet (NTS 63N/2) into three major units: 1) the predominantly greywacke derived gneiss and migmatite of the Nokomis Group; 2) the 'granitized' Nokomis Group gneiss; and 3) after Bateman and Harrison (1946), the predominantly arkose- and subgreywacke-derived gneisses and migmatites of the Sherridon Group. Zwanzig and Lenton (1987) and Schledewitz (1987) proposed a new stratigraphic nomenclature for the supracrustal components within the gneisses on the south flank of the Kisseynew gneiss belt: 1) Amisk Group for fine grained amphibolite and associated rocks that occur in proximity to the Kisseynew gneiss belt/Flin Flon greenstone belt margin; 2) Burntwood Metamorphic Suite (after Gilbert *et al.*, 1980; Lenton, 1981) for greywacke derived gneiss and migmatite; and 3) Missi Metamorphic Suite for fine grained sedimentary (and volcanic) derived quartzofeldspathic gneiss and migmatite previously mapped as granitized Nokomis by Robertson (1953). At the Flin Flon/Kisseynew belt margin the granitized Nokomis Group rocks have locally been interpreted to be equivalent to the Missi Group of the Flin Flon belt (Bailes, 1980).

Zwanzig and Lenton (1987) and Schledewitz (1987) have designated the Sherridon Metamorphic Suite as the dominantly quartz-rich, quartzofeldspathic gneisses that include rocks of the former Sherridon Group within the type area at Sherridon, Manitoba. Robertson (1953) interpreted his Sherridon Group rocks to have been derived from a sequence of clastic sedimentary rocks, including abundant orthoquartzite, with interbedded hornblende gneisses of both sedimentary and volcanic origin. Goetz (1980) proposed that some of the Sherridon Group amphibolite layers and one felsic breccia unit, in the vicinity of Sherridon, may represent volcanic rocks and suggested that these rocks may be high metamorphic grade equivalents of Amisk Group volcanic rocks. Ashton and Froese (1988) speculated that the quartz-rich gneisses of Robertson's Sherridon Group, in the vicinity of Sherridon, may be metamorphosed felsic volcanic rocks rather than metasedimentary units. These rocks are restricted to the domal Sherridon structure that straddles NTS areas 63N/2 and 63N/3 (Zwanzig *et al.*, 1988) and contains the Sherridon Cu-Zn massive sulphide type deposit plus a number of smaller base metal massive sulphide type deposits (Gale *et al.*, 1980). Ostry (1986) reinterpreted Robertson's granitized Nokomis Group gneiss as a sequence of fine grained quartzofeldspathic paragneiss and amphibolite (the present Missi Metamorphic Suite) and lithologically distinguished these rocks from those of Robertson's Sherridon Group (the present Sherridon Metamorphic Suite).

The Burntwood River Metamorphic Suite comprises biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss and quartz-feldspar-garnet-biotite migmatite ± cordierite ± sillimanite (Zwanzig *et al.*, 1988). The Missi Metamorphic Suite comprises intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± epidote ± muscovite paragneiss, pink felsic gneiss, metaconglomerate and minor amphibolite. The Sherridon Metamorphic Suite is predominantly quartzofeldspathic gneiss, commonly quartz-rich, ± garnet ± hornblende with interlayered amphibolite and calc-silicate gneiss, marble and garnet ± anthophyllite ± cordierite porphyroblastic gneiss. The garnet-anthophyllite gneiss comprises a regionally continuous stratiform layer(s) within quartz-rich gneiss of the Sherridon structure and within orthogneiss in the Batty Lake area. Ostry (1986) has also identified compositionally similar rocks in the vicinity of Walton Lake. Possible precursors include sedimentary material that underwent *in situ* chloritization prior to high grade metamorphism (Froese, 1985), metamorphosed fault gouge material (Zwanzig and Lenton, 1987) and chemical sediments. Mafic and intermediate intrusive rocks include metadiorite and massive, intermediate to ultramafic amphibolites. Felsic intrusive rocks include granite, granodiorite, tonalite and pink granitic pegmatite.

The structural history is not entirely understood due to variations in the style of deformation within the rocks that outcrop along the south margin of the Kisseynew gneiss belt (Zwanzig, 1990). Most investigators agree the earliest deformation, which is common to all areas of the belt, produced large-scale recumbent isoclinal folds or nappe-like structures (Pollock, 1965; Pearson, 1972; Elphick, 1972; Schledewitz, 1972; Bailes, 1975, 1980; Baldwin *et al.*, 1979; Lenton, 1981; Tuckwell, 1979; Zwanzig, 1983, 1984, 1990). This style of deformation is inferred from regional inversions and repetitions of stratigraphy. Refolding of the early recumbent structures has produced dome and basin interference patterns that are prevalent throughout the Kisseynew gneiss belt. Transposition of bedding and development of the main regional schistosity/gneissosity defined by biotite and/or hornblende alignment parallel to compositional layering were also effected during this event. In the Puffy lake area Ostry (1988) identified reclined flexural folds that deform the foliation about shallow plunging axes to the northeast and may have produced a well developed mineral lineation that is parallel or close to parallel to the fold axis direction. These folds have been refolded about axes with shallow plunges to the east and by folds with steeply dipping axial planes. Quartz rods that are parallel or close to

parallel to the fold axes are well developed in the hinges of these later folds. A set of cross folds that plunge north-northeast and another set that plunge west-northwest were identified at Jungle lake (MDS Map No. 19, in pocket), however, their relative ages were not defined due to the lack of observed interference patterns (Zwanzig, 1990). At the south margin of the Kisseynew belt, south of Evans Lake (MDS Map No. 19, in pocket), Zwanzig (1990) has also observed relatively simple structures that exhibit steep dips and plunges as opposed to the more typical complexly folded structures that exhibit shallow to moderate plunges and dips throughout the belt. Zwanzig (1990) tentatively interpreted the youngest structures to include open and flexural type folds, kinks and crenulations that exhibit north and south plunging axes, and high strain zones, which are prominent at the south margin of the belt, *e.g.*, the mylonitic zone immediately south of Puffy Lake (MDS Map No. 19, in pocket).

Although both base and precious metal mineralization has been documented within NTS 63N/2, at present mineral production has occurred exclusively at the Puffy Lake Gold Mine (Location 1) that was operated from 1987 to 1989. On the basis of the recently proposed stratigraphic nomenclature, the auriferous arsenopyrite mineralization (± quartz veins) at Puffy Lake is hosted by Amisk Group rocks.

Arsenopyrite mineralization has also been documented within Burntwood River Metamorphic Suite paragneiss (Locations 35, 48, 51, 52 and 66); the mineralization at two of these occurrences (Locations 35 and 51) contains anomalous gold.

At Location 41, a thin vein of arsenopyrite that contains anomalous gold represents the sole documented occurrence of arsenopyrite within the Sherridon Metamorphic Suite gneiss.

Elsewhere in the map sheet, stratabound gold-bearing arsenopyrite mineralization occurs within a distinctive conformable amphibolite sequence that occupies a stratigraphic position between Burntwood River Metamorphic Suite paragneiss and Missi Metamorphic Suite paragneiss at Nokomis Lake (Location 2) and Evans Lake (Location 4). The stratigraphic affiliation of this distinctive amphibolite sequence is unclear (MDS Map No. 19, in pocket).

Base metal massive sulphide type mineralization has been identified at Jungle Lake (Location 3) where it occurs within quartzofeldspathic, commonly quartz-rich, rocks of the Sherridon Metamorphic Suite. Froese and Goetz (1981) place the Jungle Lake deposit at the same stratigraphic position as the Sherridon East, Sherridon West and Park Lake massive sulphide type deposits that are located immediately to the west in the NTS area 63N/3. Also within Sherridon Metamorphic Suite quartzofeldspathic gneiss, Froese and Goetz (1981) have extrapolated the stratigraphic position of the 'ore-bearing horizon' that contains the Bob Lake and Fidelity massive sulphide deposits from 63N/3 into 63N/2. Location 5, interpreted as massive sulphide type mineralization, would occur at or near this stratigraphic position.

The Ake Zone massive sulphide type deposit (Location 140) is hosted by Burntwood River Metamorphic Suite paragneiss.

Although graphite has been recognized within Sherridon Metamorphic Suite quartzofeldspathic gneiss (Location 16; Ostry and Bieri, 1990), all alteration mineral assemblages or mineralization that form the massive sulphide type deposits on the south flank of the Kisseynew Gneiss belt do not contain graphite. At least nine other mineral occurrences (Locations 6, 12, 27, 57, 61, 70, 80, 82 and 97) display features that are commonly associated with massive sulphide type deposits. These occurrences are hosted by either Sherridon Metamorphic Suite quartzofeldspathic gneiss, Burntwood River Metamorphic Suite paragneiss or tonalitic orthogneiss.

From a metallogenetic perspective, it is of interest that all massive sulphide type deposits, and occurrences (see above list) that may exhibit geologic features common to this type of deposit, are located exclusively within areas underlain by rocks interpreted as quartzofeldspathic Sherridon Group gneiss by Robertson (1953). Anthophyllite ± cordierite- and/or sillimanite-bearing rocks (Locations 18, 38, 42, 76, 84, 91, 117, 119 and 121) form layers exclusively within rocks interpreted as quartzofeldspathic Sherridon Group gneiss by Robertson (1953). In general, mineral occurrences associated with the anthophyllite-bearing rocks comprise minor amounts of disseminated pyrite and/or pyrrhotite with or without chalcopyrite. The only exception is at Location 38 where sulphides were not identified, however, an 18 cm long sample taken from an anthophyllite-cordierite layer contained anomalous gold, tellurium and zinc (Leroux, 1989). Within this report all of the mineralization that is associated with these rocks has been interpreted as replacement type deposits.

Within Burntwood River Metamorphic Suite rocks the predominant mineral deposit type comprises graphite-Fe-sulphide mineralization. This type of mineralization is characterized by long strike length conductive zones that are interpreted to represent chemical sediment type deposits, *i.e.*, graphitic sulphide facies iron formation. Nongraphitic iron sulphide mineralization, also interpreted as sulphide facies iron formation occurrences, occur within Amisk Group rocks near Martell Lake, *e.g.*, Locations 141 to 147. Documented mineralization within Missi Metamorphic Suite paragneiss comprises minor amounts of iron sulphide.

From a regional metallogenetic perspective, mineralization commonly occurs at or near major lithologic boundaries. For example, near solid pyrrhotite layers with or without graphite (interpreted as sulphide facies iron formations) are associated with long strike length conductors and even occur within the tonalitic orthogneiss that envelops the Sherridon Structure, *e.g.*, Locations 8, 25, 26 and 28 (*cf.* graphitic layers within hanging wall gneiss at Location 3). In addition, the con-

tact between the Burntwood River Metamorphic Suite and Missi Metamorphic Suite, or Burntwood River Metamorphic Suite and Sherridon Metamorphic Suite can locally be identified by an interlayered sequence of diverse rock types that commonly include carbonate-rich gneiss to limestone, graphitic schists, graphitic argillite layers, chloritic schists and graphitic sulphide facies iron formation layers. Examples include Locations 35, 43, 45, 46, 53, 60, 62, 63, and 69.

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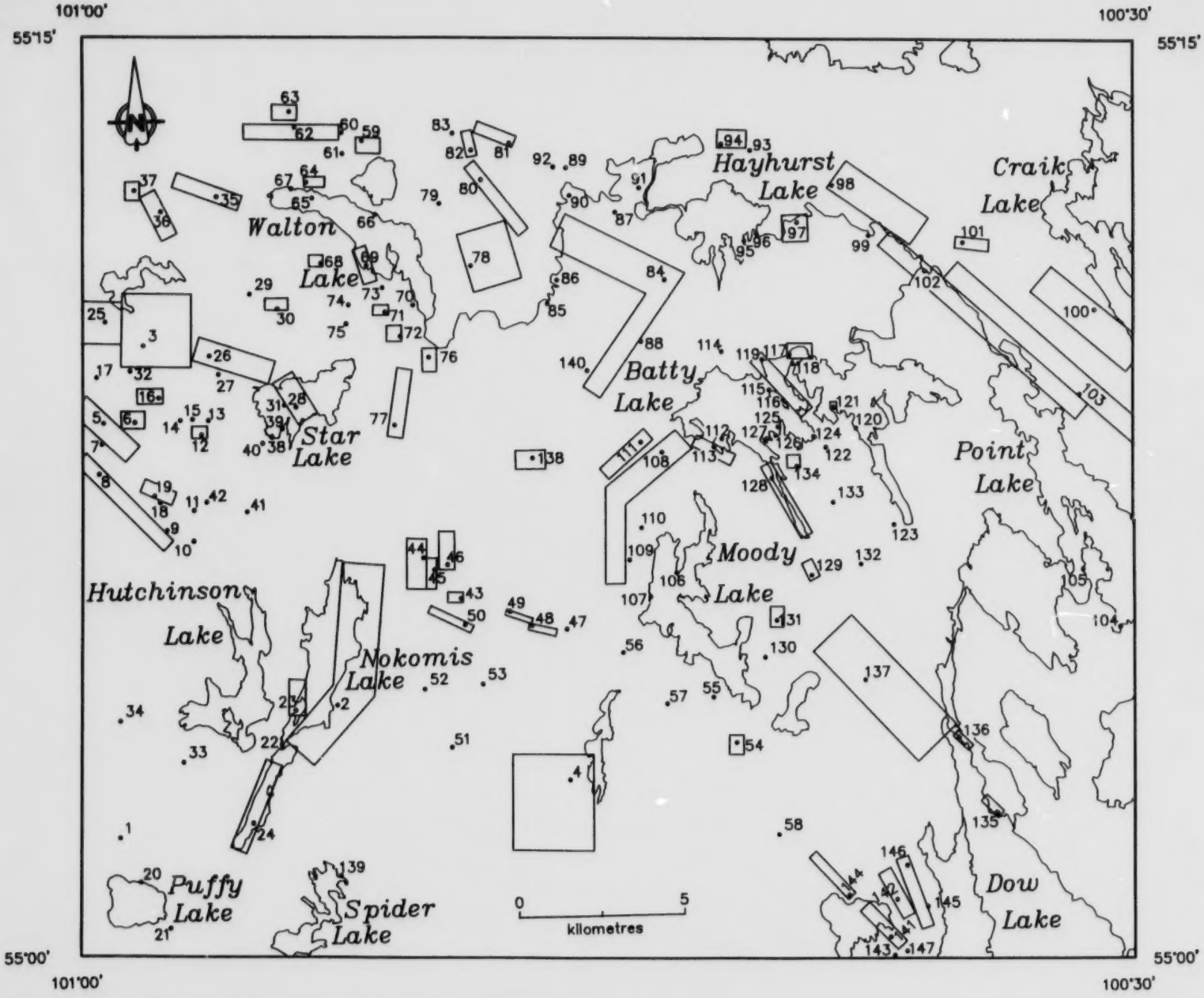

Figure 1: Location of mineral deposits and occurrences NTS 63N/2.

MINERAL DEPOSITS AND OCCURRENCES: BATTY LAKE AREA (63N/2)

LOCATION: 1

NAME: Puffy Lake gold deposit
UTM: 6099969N/373315E
ACCESS: Highway 10, Kississing Lake road, Sherridon access road, and Puffy Lake mine road.

AREA: 1 km north of Puffy Lake.
AIRPHOTO: A26327-163, 164

EXPLORATION SUMMARY:

A. Oleson staked claims NIP 1-4 in February, 1960 over an area that presently includes the Puffy Lake Mine site, approximately 8 km southeast of Sherridon, Manitoba. All interests in the claims were assigned to HBED in March, 1960. From January to April, 1960, HBED conducted HLEM surveys of these claims (AF 91872) and delineated an approximately 120 m long conductor. HBED drilled 14 DDH (DDH RAP 19 - RAP 28 and RAP 34 - RAP 37) to test the conductor (AF 91872). The NIP claims lapsed in 1966. An airborne EM and magnetometer survey performed during 1972 by Sherritt Gordon Mines Ltd. included the vicinity of the occurrence (A.F. 91695). J.J. Studer staked CB 10186 over the area in October, 1979. In December, 1982 100% interest in the claims was transferred to Granges Exploration Aktiebolag (Granges). In June, 1980, Maverick Mountain Resources Limited (Maverick) entered into an option agreement with Granges. Early in 1981 Maverick completed a 30-hole drill program and estimated reserves of 428 000 tonnes averaging 7.68 g/t gold (Canadian Mines Handbook, 1982). During the winter of 1984-1985 a 29-hole drill program was performed. The strike length of the main zone was increased to 1037 m and a second zone of mineralization was discovered, 275 m north of and parallel to the main zone. Drill indicated reserves at the completion of the program were calculated to be 603 000 tonnes averaging 6.86 g/t gold (Northern Miner, May 23, 1985). A $2 million underground development program was awarded to Canadian Mine Development that included a decline ramp to the 100 and 200 levels, drifting, trial stoping and bulk sampling (Northern Miner, April 7, 1986). Underground development began in May, 1986. In September, 1986, Maverick and Pioneer Metals Corporation (Pioneer) merged under the latter name. In January of 1987, Pioneer announced plans to place the Puffy Lake gold deposit into production at a rate of 500 tonnes per day at an estimated capital cost of $18 million (Northern Miner, January 26, 1987). A feasibility study conducted by Kilborn Engineering Ltd. concluded that the reported reserves of 1.3 million tons grading 7.88 g/t gold within four parallel mineralized zones could be mined using modified open stope methods (Northern Miner, January 26, 1987). A 93% rate of recovery was expected at an operating cost of $175 US per ounce (Pioneer news release, January 19, 1987). Reserves were calculated using an average 2 m mining width, 3.43 g/t gold mining cutoff grade and a 10% dilution factor. Mill site excavation began May 15, 1987 and pre-production underground development commenced near the month end. After completion of 225 DDH Pioneer updated ore reserves to 2.25 million tonnes grading 7.99 g/t gold and increased projected production to 900 tonnes per day (Northern Miner, May 11, 1987). The claim was converted to a mining lease October 30, 1987. Milling began December 4, 1987 and the first dore bar was poured December 15, 1987 (Northern Miner, March 7, 1988). The deposit was estimated to contain probable and possible reserves of 3.54 million tonnes grading 7.88 g/t gold (Northern Miner, May 9, 1988). In March, 1989, Pioneer announced suspension of mining operations due to a continuing operating loss and failure to reach commercial production levels (Globe and Mail, March 21, 1989). A 12 to 16 week assessment program conducted by Strathcona Minerals, a mining consulting firm, that included an updating of underground geological mapping and a reassessment of development work was expected to be complete by early August, 1989 (Northern Miner, July 10, 1989).

GEOLOGICAL SETTING:

The general area of the Puffy Lake deposit is underlain by fine grained intermediate to mafic biotite- and amphibole-bearing gneiss, quartzofeldspathic gneiss, greywacke gneiss and tonalitic-granitic orthogneiss (Ostry, 1986; Fig. 1-1; Fig. 1-2). At least three and possibly four periods of deformation have affected these rocks (Ostry, 1988). The earliest deformation recognized (D_1) produced a well developed foliation (S_1) defined by biotite and/or hornblende alignment parallel to compositional layering. Large-scale folds related to D_1 were not identified. The second deformation (D_2) produced the most conspicuous macroscopic structures within the map area, i.e., two large-scale reclined flexural folds (F_2) that fold the S_1 foliation (Fig. 1-2). A well developed mineral lineation that exhibits a shallow plunge at 030-060 and is parallel or close to parallel with F_2 fold axes was generated during D_2. D_3 deformation produced upright flexural folds (F_3; Fig. 1-3) that deform F_2 folds. F_3 folds exhibit axes with shallow plunges to the east and steeply dipping axial planes. Both the fold axes and the trace of the axial planes trend approximately 070. A stretch lineation that parallels or closely parallels F_3 fold axes is well developed in the hinges of F_3 folds.

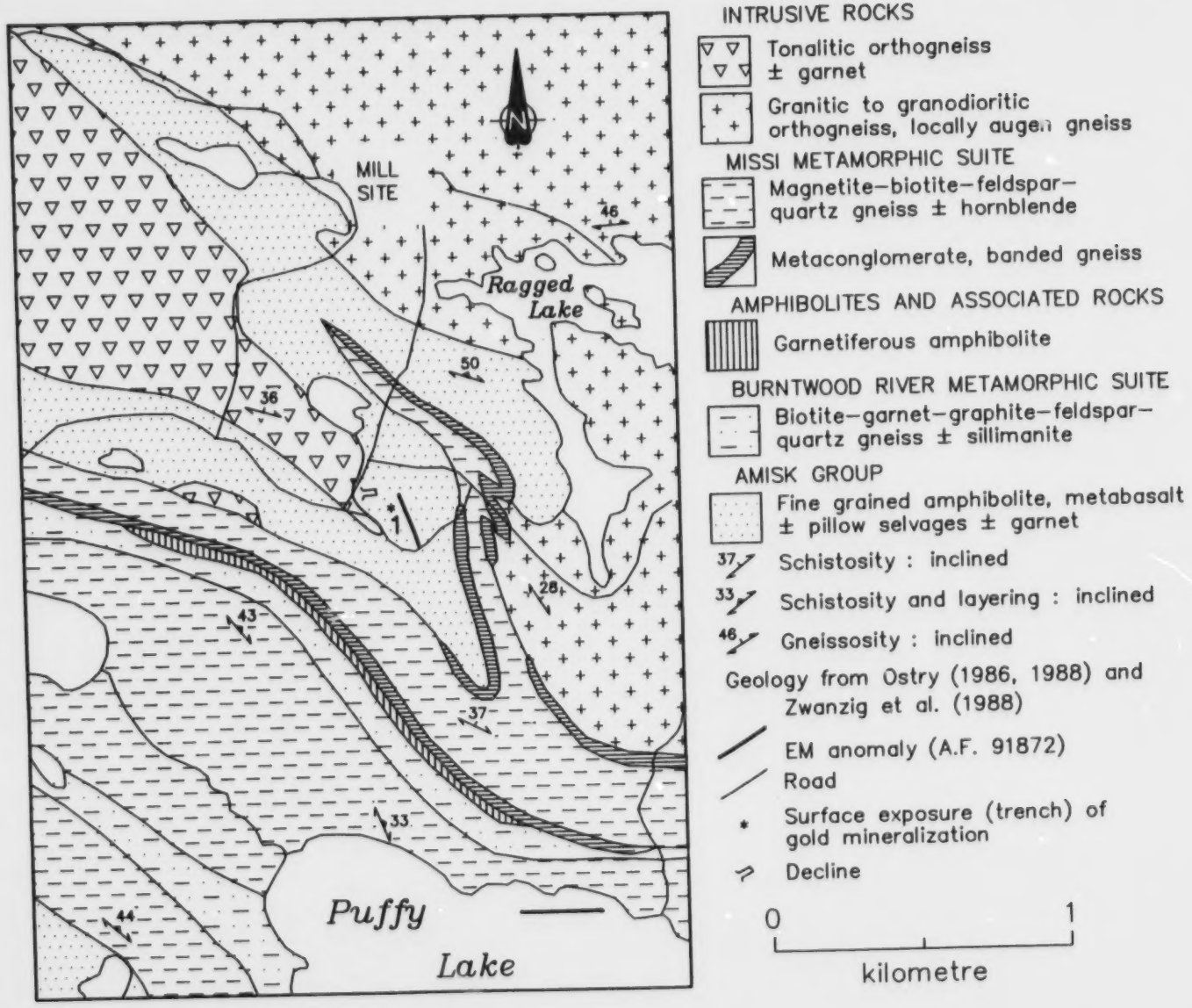

Figure 1-1: ***General geology and geophysical anomalies in the Puffy Lake area.***

MINERALIZATION:

Pioneer has identified four parallel zones of auriferous quartz-sulphide mineralization at the Puffy Lake deposit. Three of the four zones occur within an intermediate to mafic, layered sequence of fine grained, biotite-bearing paragneiss with intercalated amphibolite, ultramafic rock and felsic gneiss. The fourth zone is hosted by fine- to coarse-grained felsic quartzofeldspathic gneiss and derived migmatite. Fine- to coarse-grained blebs, disseminations, crystal clusters and mobilizate veins of arsenopyrite, pyrrhotite and pyrite ± chalcopyrite, sphalerite and galena form up to 15% of white to smokey grey quartz veins that range from less than 1 cm up to approximately 2 m in thickness. A fine grained, mineralized, schistose, biotite-rich (up to 50% biotite) quartzofeldspathic rock is the immediate host to the quartz vein(s) in three of the four zones. This rock commonly contains up to 20% arsenopyrite as thin wisps, laminae and lenticular clots (less than 5 by 20 mm). Visible sulphide mineralization within the host rocks is restricted to 1-2 m from vein margins. The fourth zone is hosted by medium- to coarse-grained felsic migmatitic quartzofeldspathic paragneiss that contains erratic concentrations of disseminated sulphide. On the limbs of the eastern F_2 fold (Fig. 1-2) the mineralized zones are conformable with lithologic layering and contiguous with the trace of the F_2 axial surface. Ostry (1989) suggests the mineralization and the quartz veins may have been emplaced pre-F_2 and gold, sulphides and quartz locally mobilized along the D_2 and D_3 fold axes direction(s). The mineralization within the fourth zone appears to have been mobilized along a linear, late- to post-folding zone of brittle deformation.

GEOCHEMICAL DATA:

The deposit is estimated to contain probable and possible reserves of 3.54 Mt (3.9 million tons) grading 7.88 g/t (0.23 oz/ton) gold (Northern Miner, May 9, 1988).

CLASSIFICATION:

Vein type deposit; multiple veins or lenses. Auriferous sulphide-bearing quartz veins and zones of quartz free, gold-sulphide mineralization occur in a biotite-rich gneiss/schist. Gold-sulphide mineralization also occurs with or without quartz veins within fine- to coarse-grained felsic quartzofeldspathic gneiss.

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January 26, 1987
May 11, 1987
March 7, 1988
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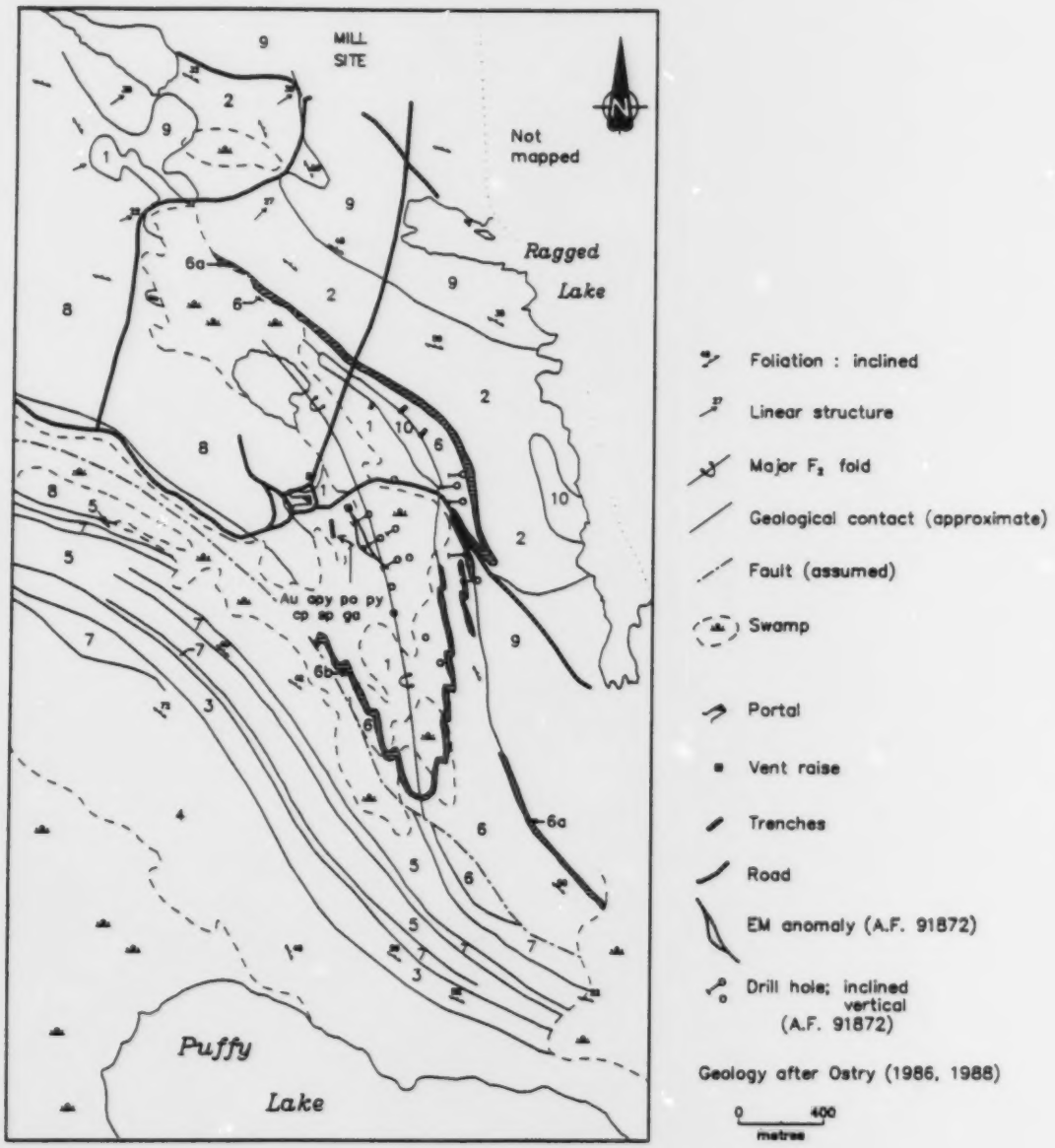

Figure 1-2: Geology in the vicinity of the Puffy Lake Gold Deposit, Puffy Lake. Legend: 1) layered, fine grained garnet- and amphibole-bearing mafic gneiss and fine- to medium-grained intermediate biotite-rich ± garnet gneiss with amphibolite interlayers; 2) fine grained, layered, variably garnetiferous amphibolite ± biotite with numerous calc-silicate-rich pods, fine grained, grey-dark grey weathered, massive quartz-feldspar-hornblende ± biotite ± garnet gneiss and a hornblende-bearing conglomeratic layer; 3) fine grained, grey weathered, quartz-feldspar-biotite-garnet (greywacke) gneiss; 4) massive and banded pink weathered siliceous quartz-feldspar-biotite ± magnetite gneiss and abundant anatectic pegmatite; 5) fine grained, felsic, biotite- and/or hornblende-bearing quartzofeldspathic gneisses; 6) fine- to medium-grained, white-grey and pale green weathered, biotite-bearing quartzofeldspathic gneiss that contains up to 30% fragmental rock layers; 6a) mafic matrix metaconglomerate; 6b) felsic matrix metaconglomerate; 7) amphibolite and garnetiferous amphibolite; 8) coarse- to medium-grained tonalitic gneiss; 9) medium- to coarse-grained pink weathered granite; and 10) medium grained tonalite/granodiorite.

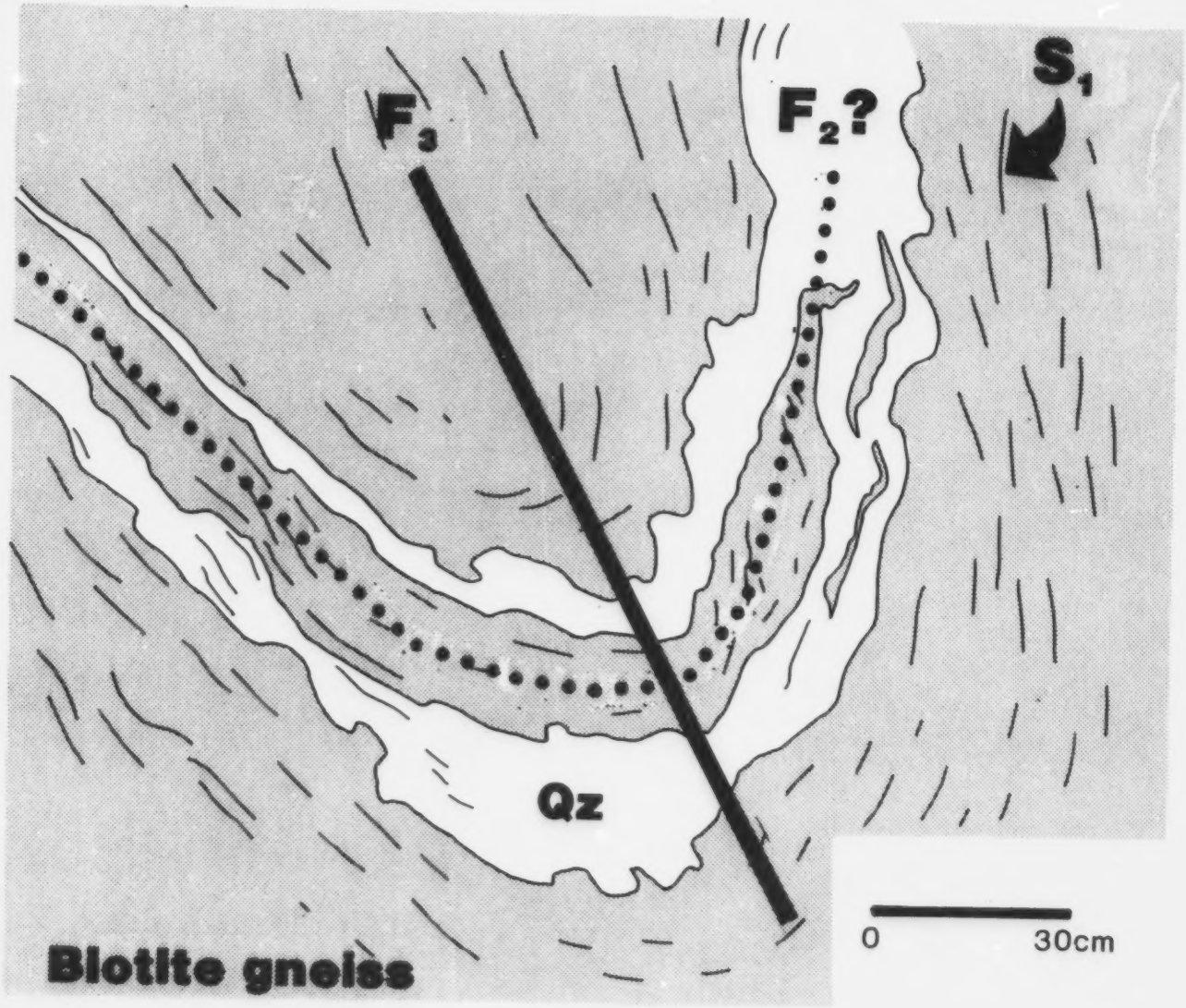

Figure 1-3: Mineralized quartz vein with possible F_2 fold refolded about steeply dipping axial plane during F_3. Figure drawn from photograph.

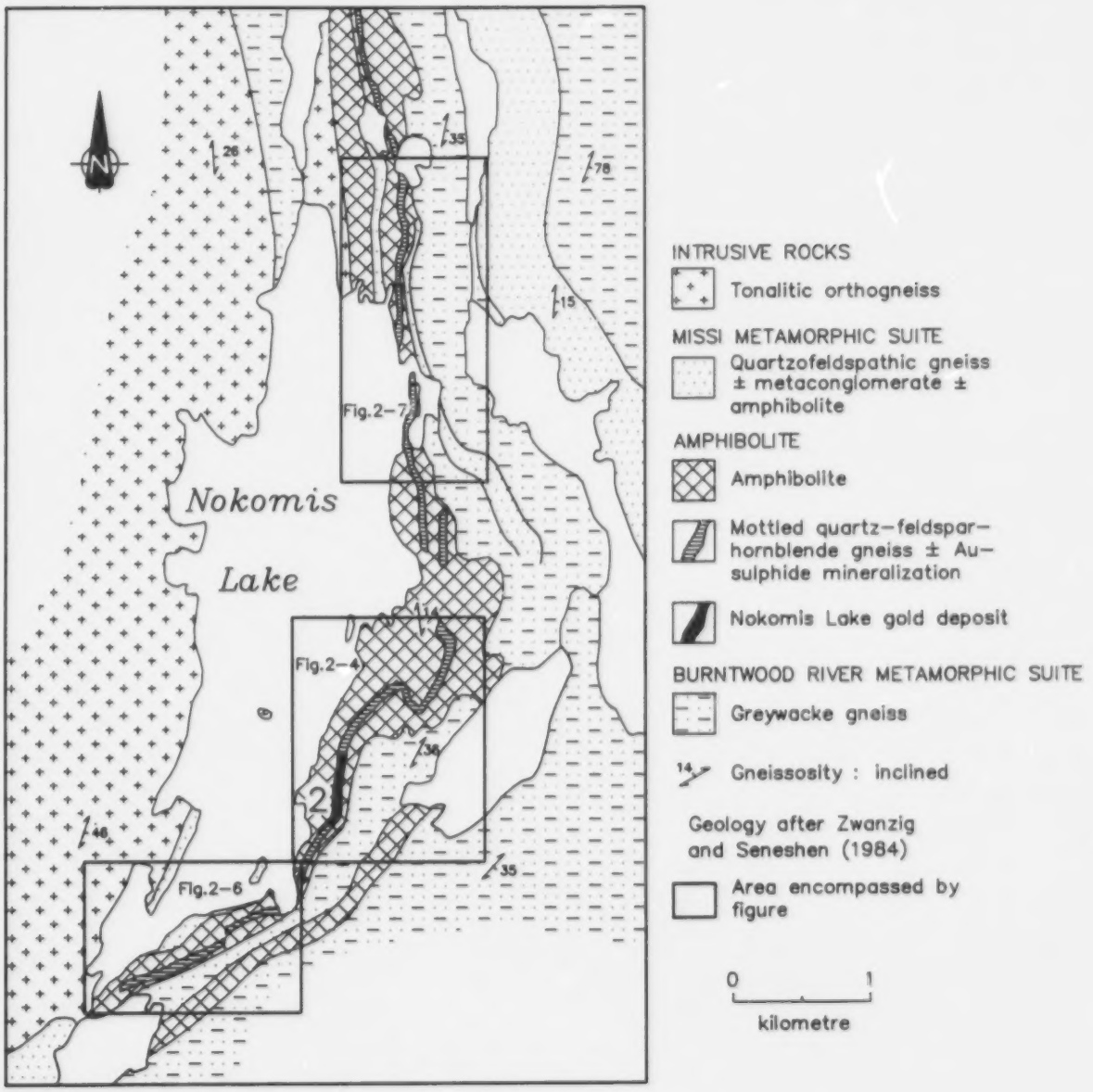

Figure 2-1: General geology of the Nokomis Lake area.

LOCATION: 2

NAME: Nokomis Lake gold deposit
UTM: 6103842N/380027E
ACCESS: Bush aircraft.

AREA: East shore of Nokomis Lake.
AIRPHOTO: A26327-40, A26326-240

EXPLORATION SUMMARY:

Prior to 1930 the area had been staked as the Glen Group, then cancelled without recorded work. In 1950, G.S. Robertson (G.S.C.) suggested to S.C. Simpson (Sherritt-Gordon) that the area was worth examination (A.F. 90659). Simpson located arsenopyrite-bearing zones that locally contained visible gold (assays up to 34 g/t gold). Simpson staked claims EST 1-4 1952 that were optioned to Sherritt Gordon. Interest in the claims was subsequently returned to Simpson. Additional claims (EST 5-60) were staked by Simpson with assistance from E. Dyck and G. D. Ruttan in 1956. The EST Group was optioned in 1956 by A.L. Parres who completed DDH 1 to 5 (91 m) in May 1958 (A.F. 90657). The option was dropped in 1960. Rio Tinto Canadian Exploration Ltd. optioned the property in 1960 and carried out a mapping, prospecting and trenching program. Several zones were located along a strike length of 1000 m (Fig. 2-1). In 1961 at least 41 holes (2860 m) were drilled (M.I.C. 63N/2 SW Au 1; A.F. 90658). The location of DDH with drill core intersections assaying 3.5 g/t gold or better are displayed on Fig. 2-2. The option was dropped in 1962 and the claims were cancelled. G. Custer and P. Sewap staked the MIS Group (1-30) for Dome Exploration (Canada) Ltd. in 1972. In 1974 Dome conducted an airborne magnetic and EM survey followed by a ground EM survey and diamond drilling in 1975. Additional drilling (25 holes) was performed in 1985 and 1987 (M.I.C. 63N/2 SW Au 1). Airborne EM anomalies were delineated over the deposit in 1972 by Sherritt Gordon Mines Ltd. (A.F. 91695). An airborne EM and magnetometer survey performed in 1979 for Elken Exploration Ltd. defined EM anomalies in the area (A.F. 92921). The southern extension of the deposit was staked in April, 1983, and transferred to Noko Resources Inc. who prospected and carried out soil and rock geochemistry surveys (A.F. 92875, 92900).

GEOLOGICAL SETTING:

The area is underlain by an up to 190 m thick amphibolite sequence (Fig 2-3) that is structurally overlain by greywacke gneiss of the Burntwood Metamorphic suite and underlain by quartzofeldspathic gneiss of the Missi Metamorphic Suite (Zwanzig, 1984; *cf.* Location 4). Mineralization is hosted by a composite quartz-bearing mottled gneiss layer within the amphibolite sequence. This unit has a strike length of at least 8 km (Zwanzig, 1984), occurs as lenses and layers several centimeters to several meters thick, and is structurally overlain by a garnet-bearing hornblende-rich amphibolite and underlain by a calcareous amphibolite with actinolite as a locally important constituent (Gale and Ostry, 1984). This variable quartz-bearing gneiss consists predominantly of quartz with locally abundant hornblende, garnet, magnetite, albite, calc-silicate minerals and sulphide-rich zones. Portions of this rock are nearly pure silica (mobilizate?) that resembles chert. The Rio Tinto drill hole information (A.F. 90658) confirms the stratabound nature of the mineralized zone and the stratigraphy of the amphibolite sequence and flanking rock units.

MINERALIZATION:

Locally, the mottled gneiss layer contains mineralized lenses of quartzite (chert?) with up to 15% sulphides. Pyrite and pyrrhotite are the dominant sulphide minerals and occur mainly as disseminations and locally as wisps and veinlets of mobilizate. Arsenopyrite is important locally and occurs as disseminations and mobilizate veinlets. Chalcopyrite, sphalerite and galena locally constitute <2% of the rock. Disseminated magnetite was observed in discreet layers/lenses within the mottled gneiss away from the sulphide-bearing lenses (Gale and Ostry, 1984). Hydrothermal alteration was not observed to be associated with the mineralization.

GEOCHEMICAL DATA:

Drilling by A.L. Parres outlined a mineralized zone with a length of approximately 100 m, average width of 1.5 m and an average grade of 9.6 g/t (0.28 oz/ton) Au (tabulated by Rio Tinto in A.F. 90659). Trenching and drilling by Rio Tinto outlined a deposit that contains 90 700 tonnes grading 10.3 g/t Au. Examples of the better assay results from the drilling (A.F. 90658) and trench work (A.F. 90659) include 15.42 g/t Au over 4.7 m (DDH 8), 15.77 g/t Au over 3.7 m (DDH 13), 10.97 g/t over 2.8 m (trench 14) and 14.40 g/t Au over 73 cm (trench 4). The relative stratigraphic positions of twenty-three rock samples collected from the mineralized layer and enveloping amphibolite sequence for geochemical analysis and assay are displayed in Figure 23. Geochemical results of selected samples are presented in Table 2-1. Assay and whole rock results are presented in Table 2-2. In the mottled gneiss layer gold contents range from 0.02 ppm (assay, Sample 5A) to 24 ppm (assay, Sample 2), arsenic contents determined by geochemical analysis range from 436 ppm (sample 3A) to 31 286 ppm (sample 2) and tungsten concentrations (geochemical analysis) range from 181 ppm (sample 3C) to 1555 ppm (sample 3A). The highest gold values are associated with elevated arsenopyrite and tungsten concentrations (Peloquin *et al.*, 1985). Locations for the 42-84-NOK- and 42-85-NOK- series of samples are displayed in Figures 2-4, 2-5, 2-6 and 2-7. A complete list of geo-

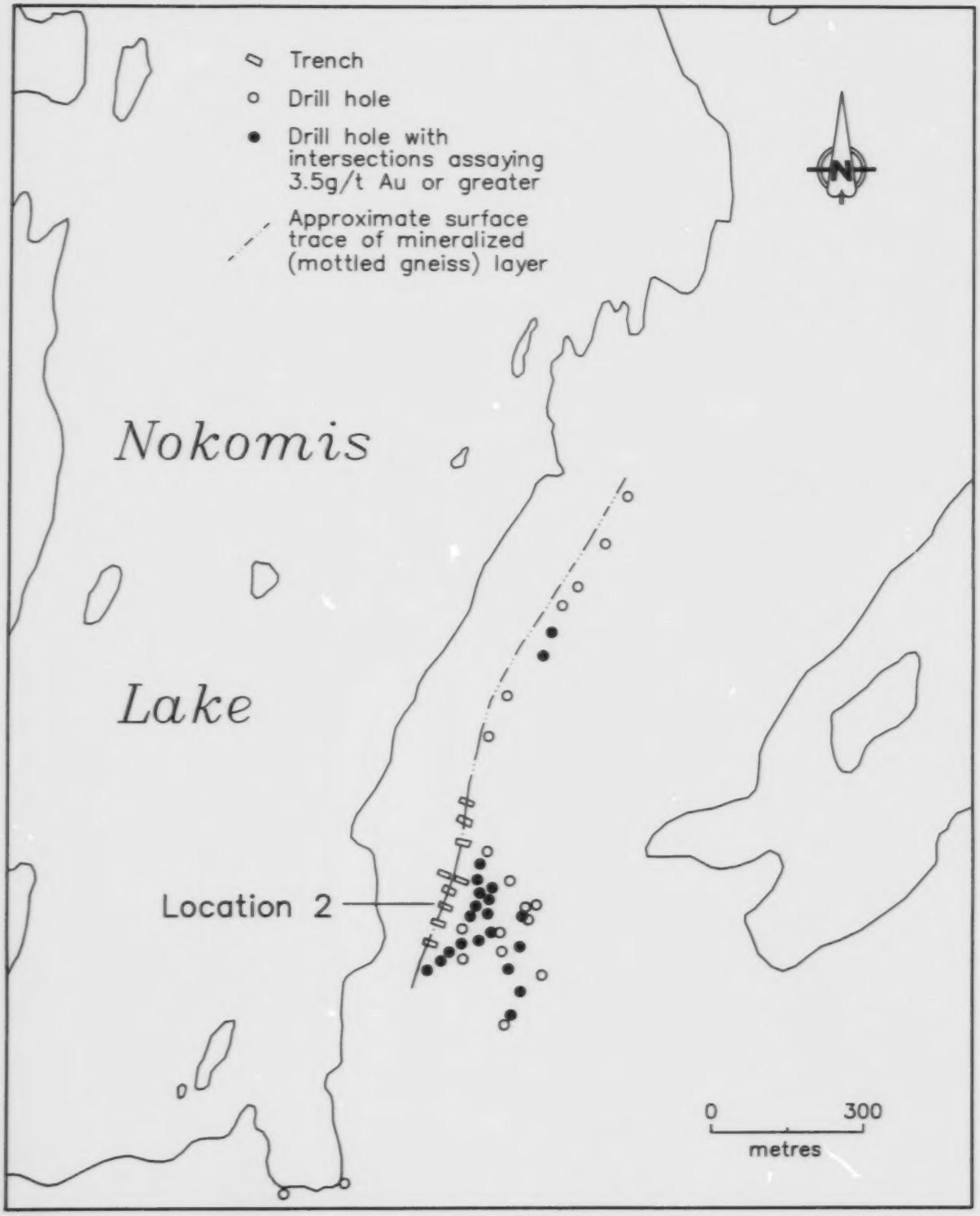

Figure 2-2: ***Selected diamond drill hole and trench locations at the Nokomis Lake gold deposit (cf. Fig. 2-4 and 2-5).***

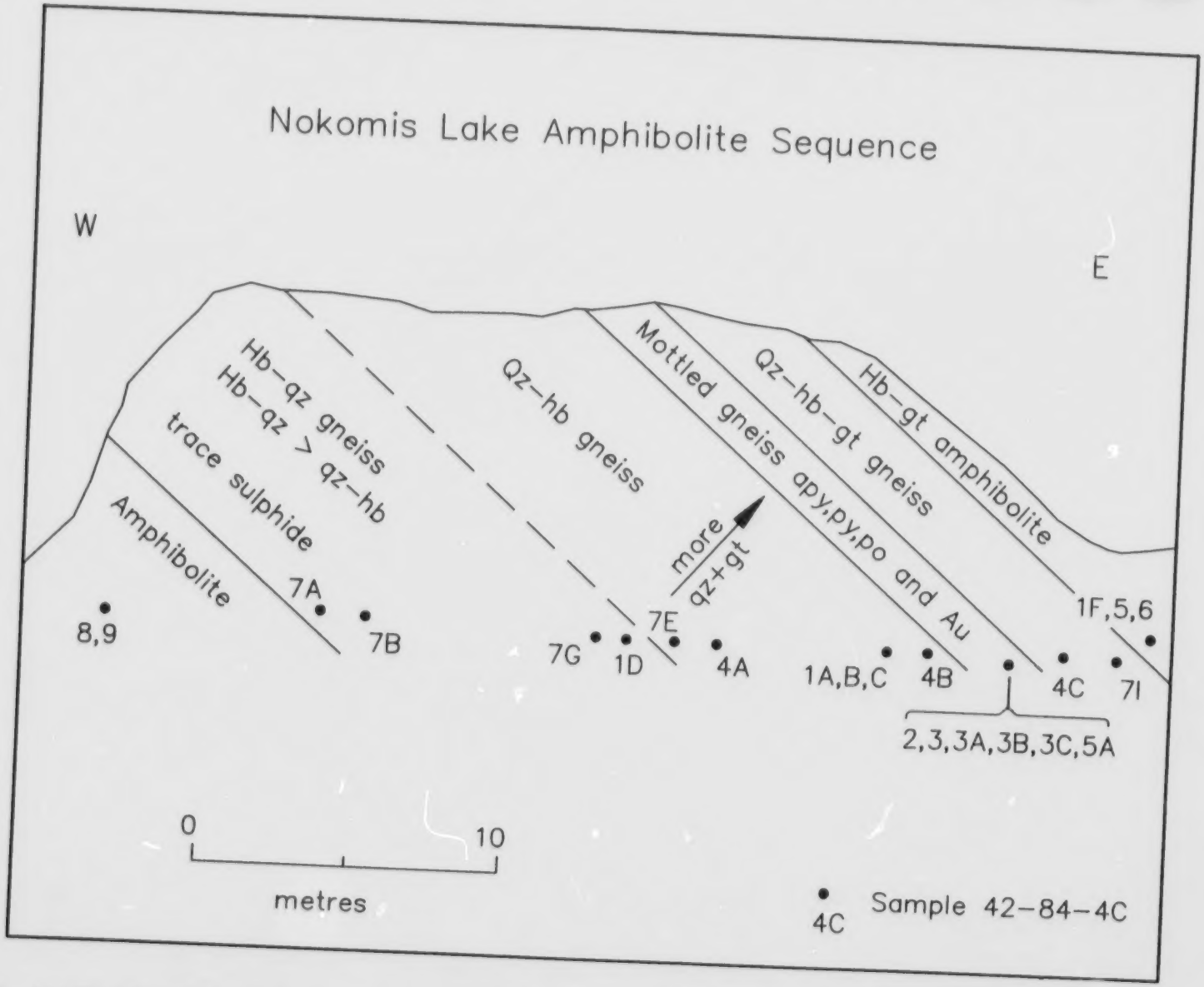

Figure 2-3: ***Location of analyzed rock samples from the Nokomis Lake gold deposit (Schematic section after Gale and Ostry, 1984).***

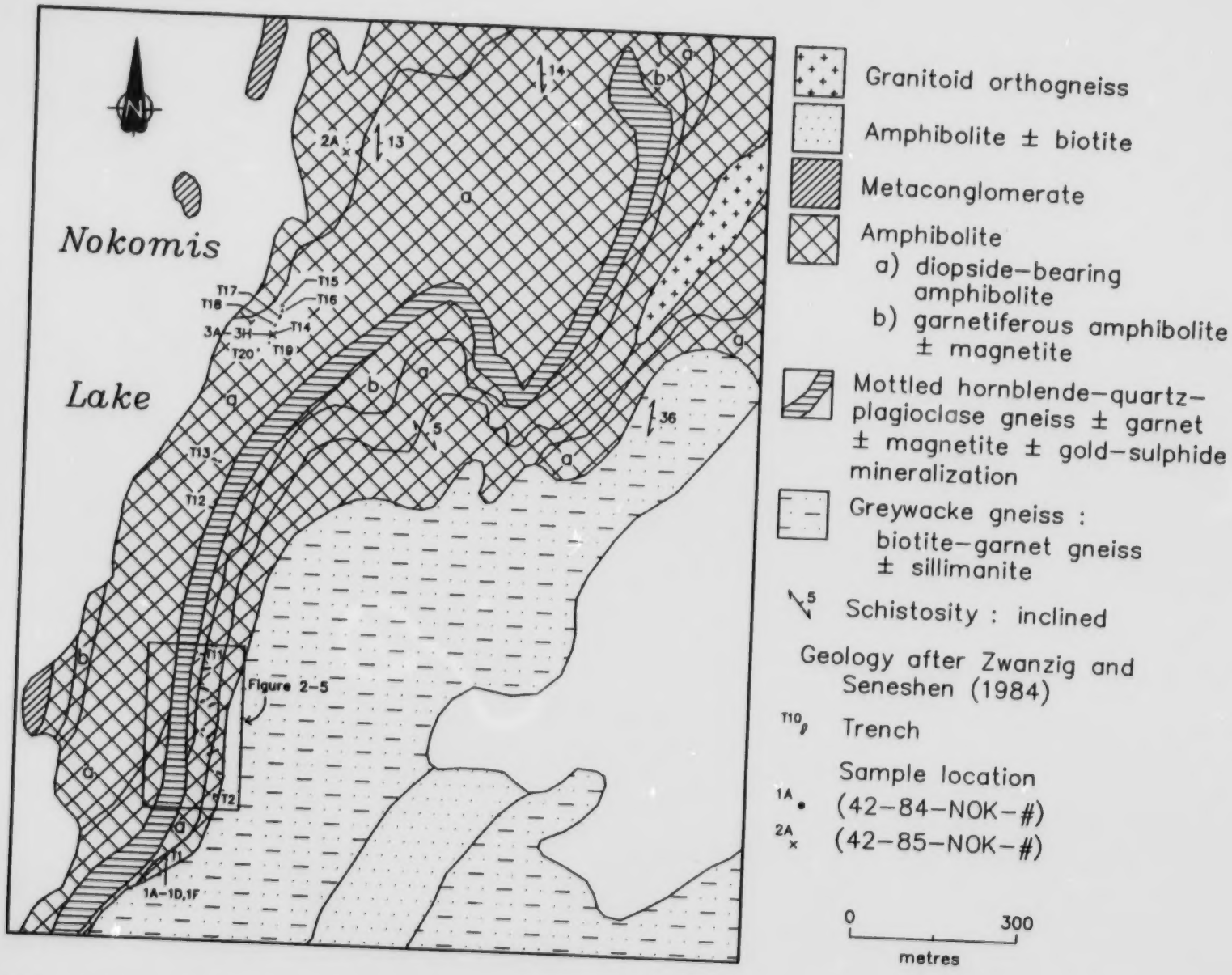

Figure 2-4: Geology, trench and sample locations in the vicinity of the Nokomis Lake gold deposit (cf. Fig. 2-5).

TABLE 2-1
GEOCHEMICAL (ICP) ANALYSES OF
NOKOMIS LAKE ROCK SAMPLES

%	1A	1B	1C	1F	2	3	3A	3B	3C	4B	5	6	8	9
Fe_2O_3	5.33	2.43	2.00	4.42	9.88	9.13	1.84	11.72	10.99	2.84	4.14	4.96	1.16	0.44
CaO	1.61	2.43	2.60	1.20	1.47	1.22	1.69	1.10	1.47	3.54	3.33	1.55	2.47	4.83
P_2O_5	0.20	0.18	0.14	0.20	0.45	0.39	0.14	0.50	0.62	0.16	0.16	0.09	0.04	0.02
MgO	0.20	0.40	0.21	0.41	0.40	0.30	0.10	0.41	0.16	0.33	0.21	0.69	1.44	0.73
TiO_2	0.10	0.17	0.13	0.17	0.05	0.08	0.10	0.11	0.08	0.28	0.08	0.28	0.05	0.01
Al_2O_3	1.04	1.15	0.58	1.34	0.68	0.90	0.54	0.77	0.51	1.26	0.43	1.49	4.13	8.07
Na_2O	0.12	0.08	0.09	0.16	0.05	0.08	0.05	0.09	0.06	0.20	0.08	0.21	0.28	0.36
K_2O	0.05	0.06	0.03	0.03	0.01	0.02	0.02	0.01	0.01	0.08	0.02	0.06	0.02	0.03
ppm														
Mo	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cu	60	18	2	37	78	109	15	140	108	5	10	112	173	32
Pb	2	4	4	4	10	7	2	13	7	3	11	5	15	2
Zn	17	14	9	20	17	14	11	15	12	38	10	23	14	4
Ag	0.1	0.1	0.1	0.1	0.9	0.2	0.1	0.2	0.8	0.1	0.1	0.1	0.1	0.2
Ni	1	2	1	1	1	1	1	1	1	1	1	4	38	13
Co	25	29	24	22	36	36	59	49	47	35	24	31	13	7
Mn	282	202	196	365	286	268	180	394	261	259	375	351	146	59
As	562	142	467	195	31,286	12,414	436	22,343	23,600	55	7,170	10	3	12
U	5	5	5	5	5	5	5	5	5	10	5	5	5	8
Au	ND	ND	4	ND	15	4	2	3	11	ND	2	ND	ND	ND
Th	4	4	1	1	1	1	1	2	3	3	2	1	1	1
Sr	8	21	18	7	13	10	15	10	11	30	24	8	31	118
Cd	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sb	2	2	2	2	48	4	5	7	2	2	3	2	2	2
Bi	2	2	3	2	2	2	2	2	2	2	2	2	2	2
V	1	1	1	18	6	7	9	7	5	1	2	37	17	7
La	10	10	5	2	6	3	4	5	3	7	6	2	2	2
Cr	1	1	1	1	2	1	3	1	1	2	1	1	95	50
Be	9	10	7	11	7	6	5	6	6	8	5	8	11	9
B	9	18	11	8	11	9	10	10	10	11	11	9	15	16
W	211	254	223	133	1421	885	1555	364	181	318	284	71	64	34

ND = not detected
These samples were analyzed by Acme Analytical Laboratories Ltd. (Vancouver) by digesting 0.500 g of rock powder with 3 ml of HCl, HNO_3, H_2O (in the proportions 3:1:2) at 95oC for one hour and then diluting to 10 ml with deionized water. This solution was then analyzed by inductively coupled argon plasma-atomic absorption spectrophotometry (ICP-AAS) for 30 elements. This digestion is partial for Fe, Ca, P, Mg, Ti, Na, K, Al. Oxide percentages were calculated from these values.

TABLE 2-2
SILICATE WHOLE ROCK AND SELECTED GEOCHEMICAL ANALYSES OF NOKOMIS LAKE ROCK SAMPLES

%	1A	1B	1C	1D	1F	2	3	3A	3B	3C	4A	4B	4C	5	5A	6	7A	7B	7E	7G	7I	8	9
SiO_2	64.5	66.2	65.2	56.9	46.8	67.0	64.6	78.9	59.3	55.9	55.5	66.7	68.1	66.9	44.5	42.5	68.0	67.1	66.9	63.2	69.0	47.0	48.3
Al_2O_3	11.2	11.0	10.2	12.5	10.8	6.6	8.7	6.4	9.2	9.4	9.8	11.0	9.6	10.2	11.7	9.8	10.9	10.7	10.4	11.3	10.7	13.2	15.1
$Fe_2O_{3(T)}$	12.5	7.9	10.2	11.1	28.4	12.7	13.8	7.1	15.0	16.8	16.8	7.0	7.1	8.4	27.6	30.6	6.3	11.5	11.5	13.1	8.3	10.8	8.1
CaO	4.7	7.4	7.7	10.3	6.4	3.5	3.9	4.5	4.1	5.5	11.2	7.9	9.8	5.6	6.9	7.7	6.1	3.7	3.5	4.9	5.4	11.6	13.7
MgO	0.5	0.9	0.6	0.6	2.5	0.6	0.5	0.3	0.7	0.6	1.2	0.5	0.5	0.5	4.4	4.1	0.7	0.7	0.4	0.5	0.6	12.9	11.6
Na_2O	4.5	3.4	4.4	4.7	2.0	2.5	3.2	1.9	3.3	3.7	2.5	3.7	2.1	5.0	2.4	1.9	5.6	4.2	4.3	5.2	3.5	1.4	1.1
K_2O	0.4	1.0	0.4	0.5	0.1	0.2	0.2	0.3	0.1	0.2	0.3	0.4	0.2	0.4	0.2	0.3	0.3	0.2	0.3	0.3	0.5	0.2	0.2
TiO_2	1.0	0.8	0.7	1.3	3.3	0.7	0.9	0.5	1.3	1.3	1.8	0.8	0.8	0.8	2.9	3.5	1.2	0.7	0.8	1.3	0.8	0.6	0.5
P_2O_5	0.15	0.15	0.15	0.37	0.15	0.31	0.24	0.09	0.32	0.42	0.48	0.14	0.12	0.15	0.07	0.05	0.17	0.11	0.10	0.16	0.10	0.01	0.04
MnO	0.12	0.09	0.13	0.15	0.37	0.09	0.10	0.07	0.12	0.15	0.18	0.09	0.06	0.10	0.32	0.33	0.08	0.12	0.12	0.13	0.10	0.18	0.11
LOI	0.4	1.0	0.7	0.8	1.0	4.8	3.0	0.6	7.0	5.2	0.7	1.8	2.3	0.5	0.1	0.6	1.3	1.6	0.5	0.5	1.0	0.2	0.6
S	0.78	0.12	0.18	0.01	0.1	3.34	3.09	0.14	4.88	4.03	0.01	0.01	0.01	0.89	0.12	0.26	0.07	0.01	0.07	0.05	0.01	0.01	0.01
ppm																							
Au	1.3	0.16	0.35	0.095	0.047	24.0	4.7	0.57	4.3	7.0	0.008	0.26	0.003	2.3	0.02	0.023	0.3	0.011	0.015	0.017	0.012	0.027	0.01
Ag	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Se	0.2	<0.2	<0.2	NA	0.2	1.4	0.2	<0.2	1.2	0.9	NA	<0.2	NA	0.2	NA	0.5	NA	NA	NA	NA	NA	<0.2	<0.2
Te	0.2	<0.2	<0.2	NA	<0.2	12.0	2.9	<0.2	11.2	8.0	NA	<0.2	NA	1.0	NA	<0.2	NA	NA	NA	NA	NA	<0.2	<0.2
B	17.0	54.0	40.0	NA	47.0	34.0	31.0	42.0	31.0	41.0	NA	37.0	NA	26.0	NA	40.0	NA	NA	NA	NA	NA	37.0	45.0
Hg	0.02	0.01	0.005	NA	0.005	0.04	0.01	0.005	0.005	0.02	NA	0.005	NA	0.005	NA	0.005	NA	NA	NA	NA	NA	0.005	0.005

NA = not analyzed
The silicate whole rock analyses were performed by Manitoba Energy and Mines Analytical Laboratory (Winnipeg) by fusing 0.2 g of rock powder with a mixed flux of Li metaborate and Li tetraborate and digesting this mixture in 5 % HCl. This solution was made up to 100 ml with deionized water. The oxides were determined by AAS except for Si and P which were determined colourimetrically. S and CO_2 were determined on the Leco sulphur analyzer and Leco carbon analyzer, respectively. LOI was determined by Leco induction furnace after 15 minutes at 1000^0 C.
Au and Ag concentrations were determined by AAS with a lower detection limits of 1 ppb and 0.5 ppm, respectively. B, Te and Se concentrations were determined by AA hydride generation.

chemical analyses and silicate whole rock analyses are presented in Appendix I and Appendix II, respectively.

CLASSIFICATION:

Chemical sediment type deposit; other chemical sediments. Due to the stratabound nature of both the magnetite-bearing lenses/layers and the sulphide-bearing lenses within the quartz-bearing, mottled gneiss layer and lack of obvious associated alteration the mineralization is interpreted to be associated with chemical sedimentary rock.

REFERENCES:

Assessment Files 90657, 90658, 90659, 91695, 92875, 92900, 92921

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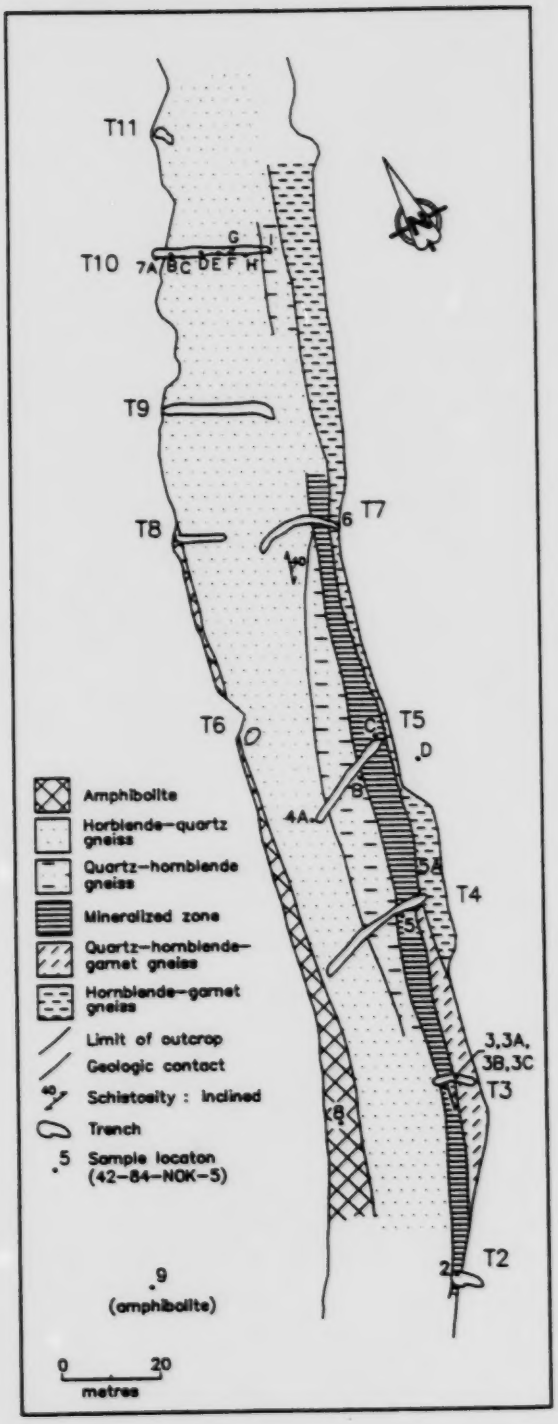

Figure 2-5: ***Sketch map of the geology and trench locations at the Nokomis Lake gold deposit.***

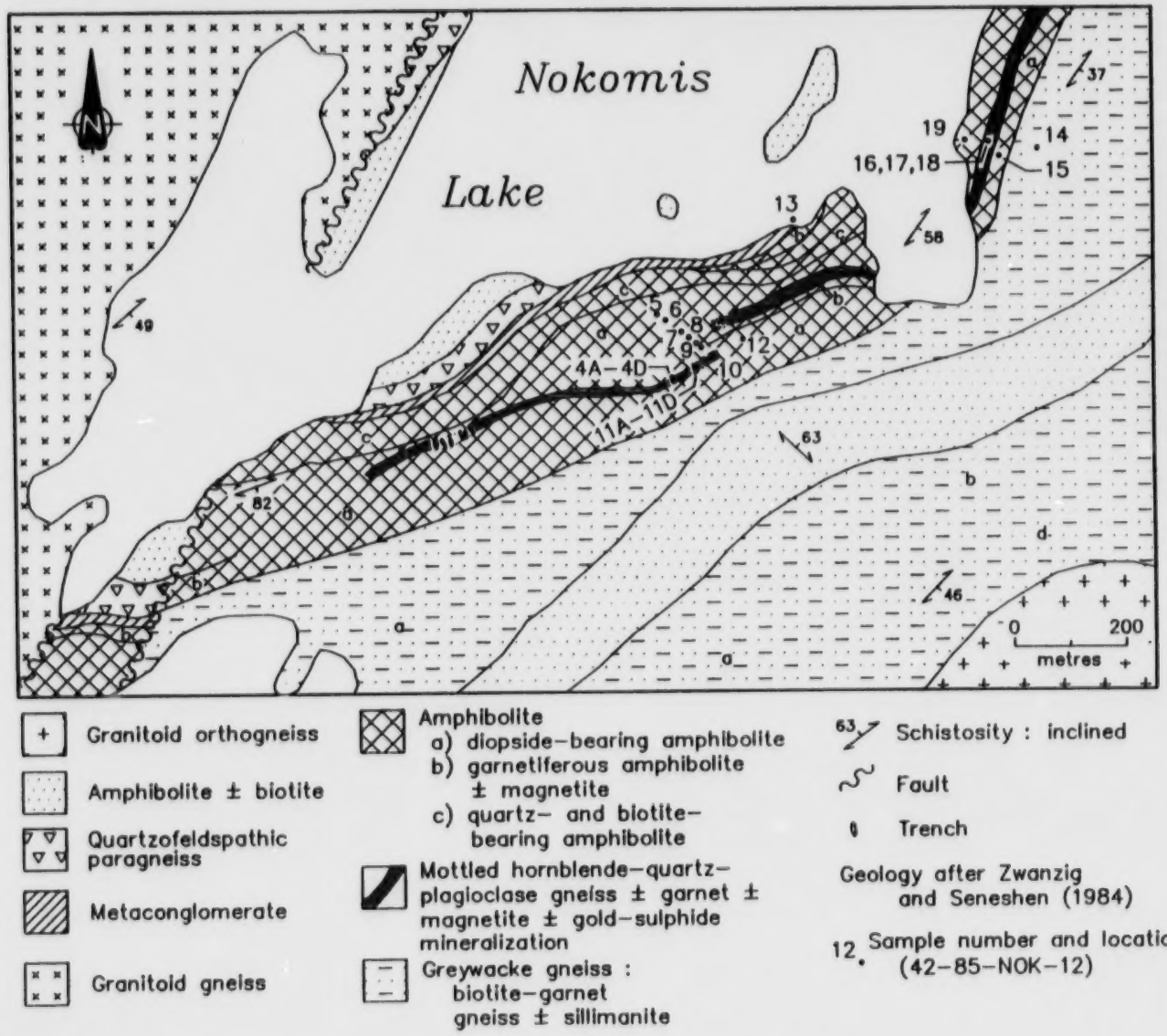

Figure 2-6: Geology, trench and sample locations south of the Nokomis Lake gold deposit.

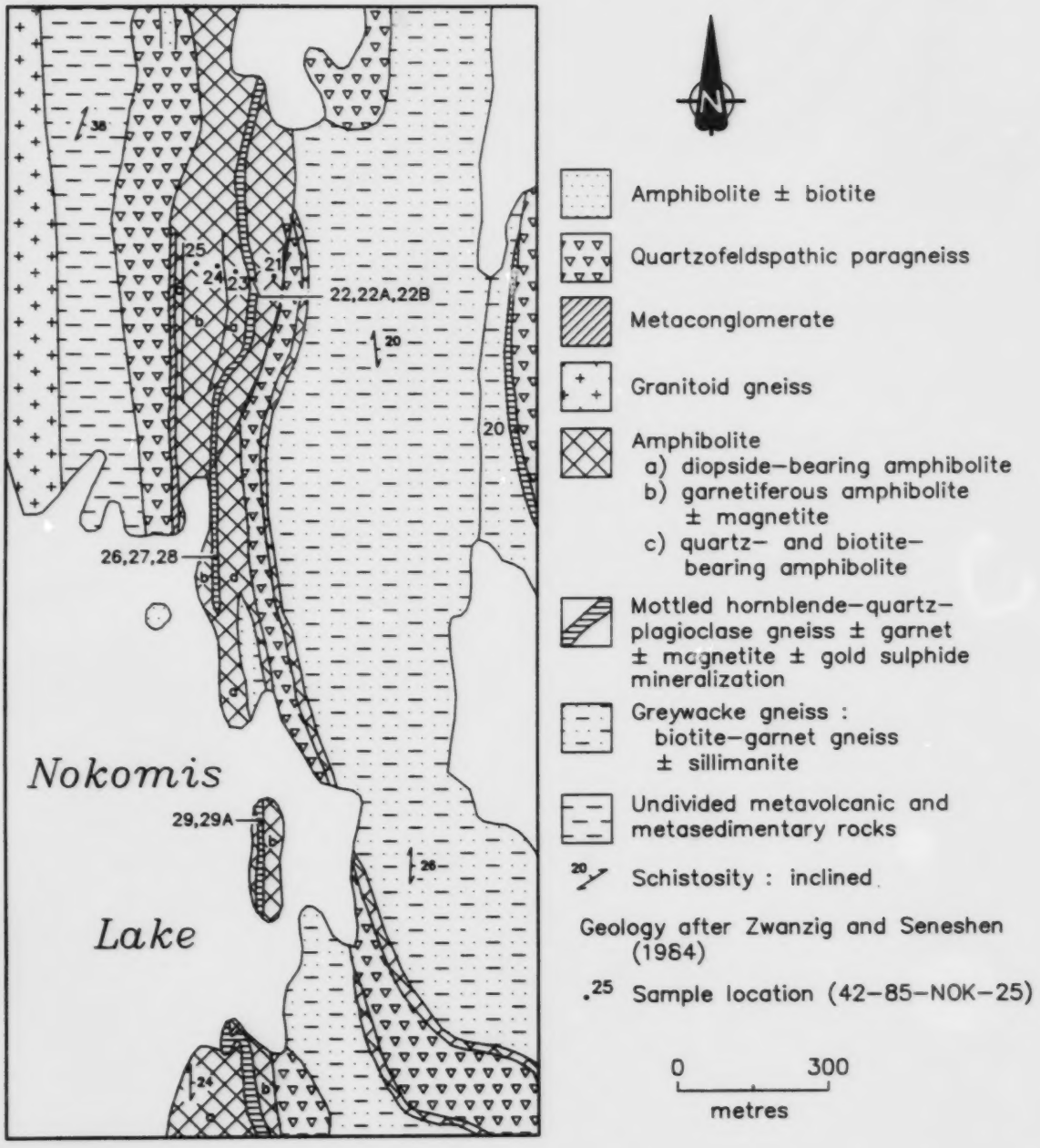

Figure 2-7: Geology, trench and sample locations north of the Nokomis Lake gold deposit.

LOCATION: 3

NAME: Jungle Lake Zn-Cu deposit
UTM: 6114855N/374426E
ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Jungle Lake, and traverse.

AREA: 1 km south of Jungle Lake.
AIRPHOTO: A26327-152

EXPLORATION SUMMARY:

The NOK 6 claim was staked in 1957 by R. Collard and transferred to HBED. Ground HLEM geophysics was carried out in the winter of 1957-1958 (A.F. 91598) followed by drill programs in 1958, 1959, 1962, 1966 and 1967 (A.F. 91598; M.I.C. 63N/2 Cul). The 1958 annual report for HBM&S describes the deposit as a low grade deposit, not economic at prevailing metal prices (3.36 Mt, 1.42% Cu, 1.1% Zn). The area was surveyed in 1960 and in 1961 was leased (lease M 7446) for 21 years. In 1976 the lease was converted to EAL 10. The lease area was included in an airborne EM survey flown by Sherritt Gordon Mines Ltd. in 1972 (A.F. 91695)

GEOLOGICAL SETTING:

The area is underlain by an east-trending sequence of Sherridon Metamorphic Suite quartz-rich paragneiss and amphibolitic gneiss (Robertson, 1953; Froese and Goetz, 1981; Zwanzig *et al.*, 1988; Fig. 3-1). The mineralization is hosted by quartz biotite gneiss interlayered with quartz-rich gneiss (quartzite?), quartz-feldspar-biotite gneiss and quartz hornblende gneiss (HBED/HBM&S written communication, 1990). The surface projection of the deposit is in rocks mapped as orthogneiss by Zwanzig *et al. (1988)*.

MINERALIZATION:

The deposit comprises near solid pyrrhotite and pyrite that contain blebs and stringers of chalcopyrite and sphalerite. The zone dips approximately 40° to the north, has a known strike length of approximately 365 m (1200 feet), a true width of 5.6 m (18.3 feet) and extends to a vertical depth of 400 m (1300 feet). Zones or layers that contain disseminated graphite occur within the hanging wall quartz biotite gneiss on the north side of the deposit (HBED/HBM&S written communication, 1990).

GEOCHEMICAL DATA:

Estimated reserves are 1 980 380 tonnes grading 1.26% Cu, 1.6% Zn, 3.8 g/t Ag and trace Au to a vertical depth of 370 m (1200 feet) (A.T. Baumgartner, HBED, written communication, 1990).

CLASSIFICATION:

Stratabound massive sulphide type deposit; sedimentary rock associated. The Jungle Lake deposit is interpreted to be a distal deposit in view of the lack of a documented alteration zone associated with the mineralization. Froese and Goetz (1981) place the Jungle Lake deposit at the same stratigraphic position as the Sherridon East, Sherridon West and Park Lake massive sulphide type deposits located immediately to the west in NTS area 63N/3.

REFERENCES:

Assessment Files 91598, 91695
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Froese, E. and Goetz, P.A.
1981: Geology of the Sherridon Group in the vicinity of Sherridon, Manitoba; Geological Survey of Canada, Paper 80-21, 20p.

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1953: Batty Lake Map-Area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

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1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

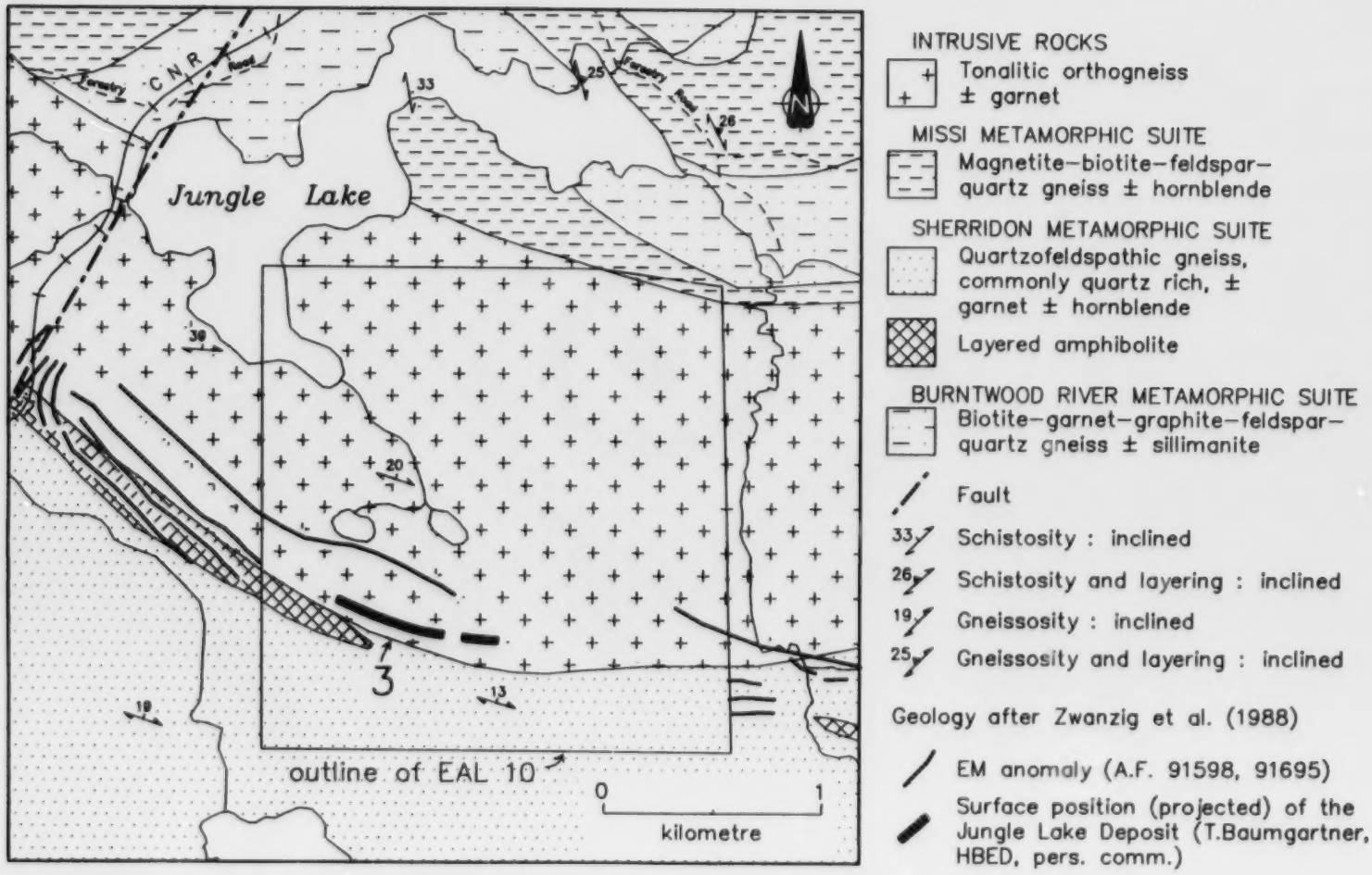


Figure 3-1: General geology in the vicinity of the Jungle Lake Deposit.

LOCATION: 4

NAME: Evans (*aka* Kay) Lake
UTM: 6101407N/387016E
ACCESS: Bush aircraft to Evans Lake, and traverse (see location of trail on Fig 4-1).

AREA: 750 metres west of south end of Evans Lake.
AIRPHOTO: A26325-128, 129, A26326-50

EXPLORATION SUMMARY:

The ATZ Group, which covered the northern part of the area, (ATZ 1-51) were staked by G. Simpson, C. Shapland and D.C. Beveridge in 1946 and transferred to International Mining Corp. (Canada). International Mining drilled 14 holes (539 m) in March, 1948 (A.F. 90653). The drill holes were probably collared near the occurrence noted by Robertson (1953) near the north limit of known mineralization. The southern portion of the occurrence area was staked by W. F. Uhrich in 1947 (M.I.C. 63N/2 SW Au2). Geological mapping and trenching were performed (A.F. 90660). The northern portion of the occurrence area was staked by J.J. Studer for Granges Exploration Aktiebolag in October, 1980 (CB 12300, NUFF 10) and April, 1981 (CB 12322, 3; SNUF 1,2). A detailed staking history of the area is presented in M.I.C. 63N/2 SW Au2.

GEOLOGICAL SETTING:

The area is underlain by an up to 160 m thick amphibolite sequence (Peloquin *et al.*, 1985) that is structurally overlain by greywacke gneiss of the Burntwood Metamorphic suite and underlain by quartzofeldspathic gneiss of the Missi Group (Fig 4-2; *cf.* Location 2, this volume). The amphibolite sequence (Fig. 4-3) comprises, from structurally lowest to highest: 1) a layered (1 to 50 cm) fine- to medium-grained amphibolite up to 83 m thick that locally contains layers of calc-silicate material; 2) a composite, quartz-bearing mottled gneiss up to 30 m thick that consists predominantly of quartz and feldspar with locally abundant garnet, magnetite, albite, carbonate, calc-silicate minerals and sulphide-rich zones/lenses; 3) an up to 7 m thick garnet-rich hornblendite that locally occurs adjacent to the mottled gneiss; 4) a massive, medium- to coarse-grained amphibolite up to 35 m thick that, in proximity to the mottled gneiss and/or hornblendite, is layered and contains garnet; and 5) a principally massive, but locally layered green weathered medium- to coarse-grained calcareous amphibolite up to 90 m thick that locally contains a thin (up to 1 m), very fine grained, locally mineralized siliceous layer in proximity to the greywacke gneiss. In the south part of the area geological mapping conducted during 1947 delineated a sequence of metamorphosed basic volcanic rocks enclosed by metamorphosed greywacke and arkose that contains a prominent dyke of variably mineralized quartz diorite-granodiorite (A.F. 90660). The 1948 drill holes intersected hornblende-mica-quartz gneiss and schist with garnetiferous interlayers structurally underlain by hornblende-mica-quartz gneiss and schist, in part carbonatized. A zone of silicification and mineralization, up to approximately 6 m in core length, associated with hornblende-quartz gneiss within the lower unit was intersected by the drill holes and exposed in a 5 m long trench (A.F. 90653).

MINERALIZATION:

Lenses of gold-arsenopyrite mineralization are stratabound within the composite quartz-bearing mottled gneiss and the thin siliceous layer within the calcareous amphibolite. Sulphide mineralization comprises up to 5% disseminated pyrite, pyrrhotite ± arsenopyrite and rare chalcopyrite. Thin, less than 1 cm wide, veins of iron sulphide and/or arsenopyrite mobilizate were observed locally within the mottled gneiss. Up to 1% disseminated fine grained pyrite and/or pyrrhotite with rare chalcopyrite occurs locally within the amphibolite layers. Arsenopyrite, minor amounts of pyrite and trace pyrrhotite that occur within the zone of silicification were documented in the 1948 drill core. This zone is normally enclosed by hornblende-quartz gneiss/schist that contains disseminations and minute seams of pyrite. During the 1947 mapping program several occurrences of patchy, disseminated and/or acicular arsenopyrite were documented in the south area associated with the dyke or shear zones, with or without quartz veins. Galena was observed within one of the mineralized quartz veins.

GEOCHEMICAL DATA:

During the 1947 investigation (A.F. 90660) selected grab and channel samples taken from outcrop and trenches contained up to 37 g/t Au. Drill hole intersections of the silicified zones were assayed. These include 1) 14.1 g/t Au over 4.27 m (DDH 1); 2) 2.2 g/t Au over 1.77 m (DDH 2); 3) 5.3 g/t Au over 3.66 m (DDH 7); and 4) 6.9 g/t Au over 2.23 m (DDH 10). A sample taken over 2.59 m within the mineralized zone at a trench contained 13.8 g/t Au. Bulk grab samples for geochemical analysis of the mineralized layer and host rocks were collected during the 1985 field season (Fig. 4-4 and 4-5). The siliceous layer within the calcareous amphibolite contains up to 4600 ppb Au, 7453 ppm As and 8354 ppm W (Sample 42-85-K1d). The mottled siliceous gneiss contains up to 2200 ppb Au, 24 678 ppm As (Sample 42-85K224.2) and 23 ppm W (Sample 42-85K43.10). Selected outcrops were sampled for silicate whole rock analysis. Sample locations are presented in Figures 4-4 and 4-5.. Results of the geochemical analyses are presented in Appendix I. Selected samples were submitted for silicate whole rock analysis; results are presented in Appendix II.

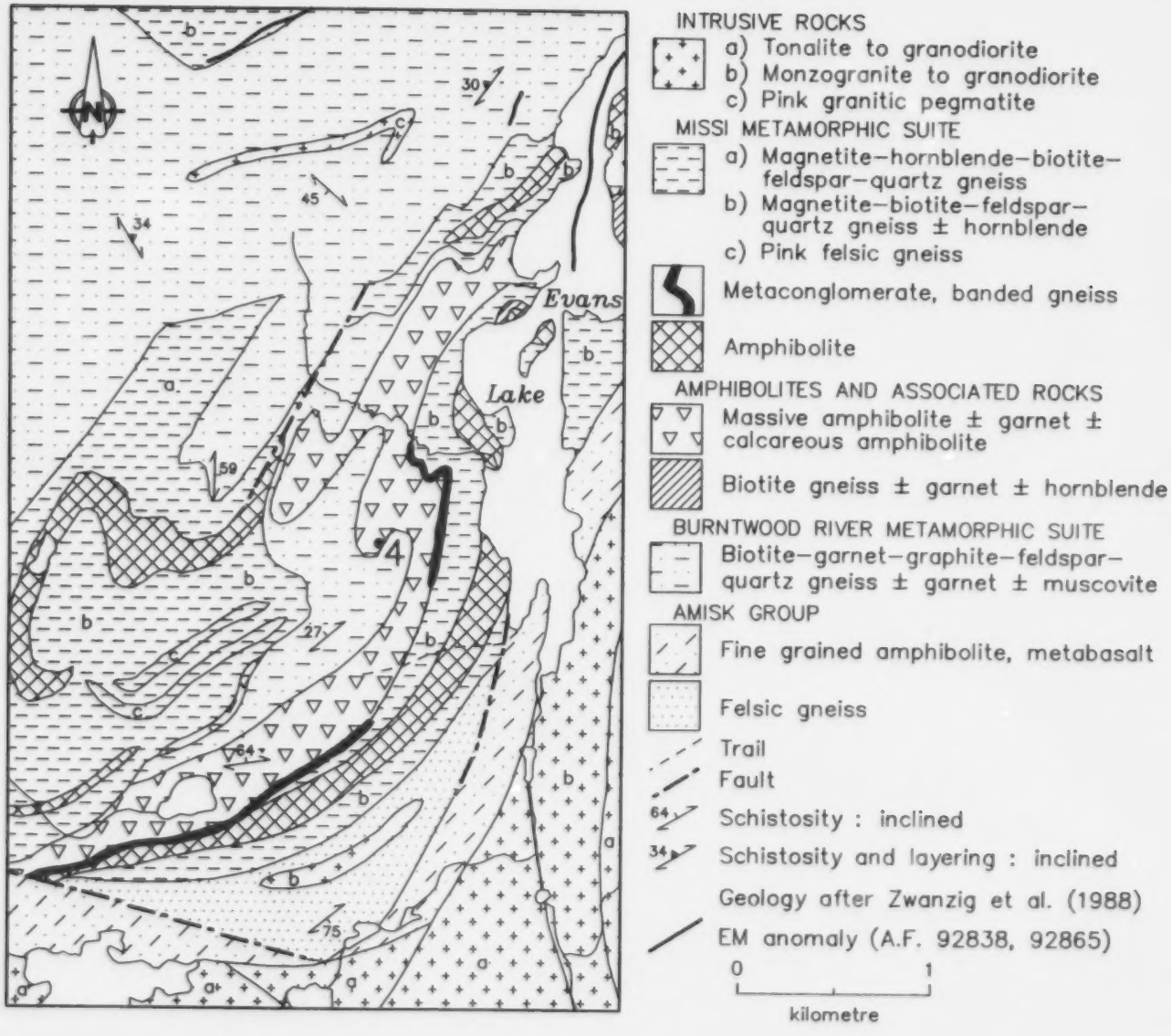


Figure 4-1: General geology and geophysical anomalies in the vicinity of the Evans (Kay) Lake gold occurrence (Location 4).

CLASSIFICATION:

Chemical sediment type deposit; other chemical sediments. Due to the stratabound nature of both the magnetite-bearing lenses/layers and the sulphide-bearing cherty appearing lenses within the quartz-bearing mottled gneiss layer and lack of obvious associated alteration the mineralization is interpreted to be associated with a chemical sedimentary rock.

REFERENCES:

Assessment Files 90653, 90660

Manitoba Energy and Mines, Minerals Division.

Froese, E. and Goetz, P.A.

1981: Geology of the Sherridon Group in the vicinity of Sherridon, Manitoba; Geological Survey of Canada, Paper 80-21, 20p.

Ostry, G.

1986: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1986, p. 100-106.

Peloquin, S., Ostry, G. and Gale G.H.

1985: Investigations of mineral occurrences in the Kisseynew metasedimentary terrain; In Manitoba Energy and Mines, Mines Branch, Report of Field Activities, 1985, p. 64-70.

Peloquin, S. and Hayden-Luck, D.

1985: Geology of the Evans Lake (Kay Lake) area; Manitoba Energy and Mines, Preliminary Map 1985-MI-2, 1:5 000

Robertson, D.S.

1953: Batty Lake Map-Area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, A.

1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

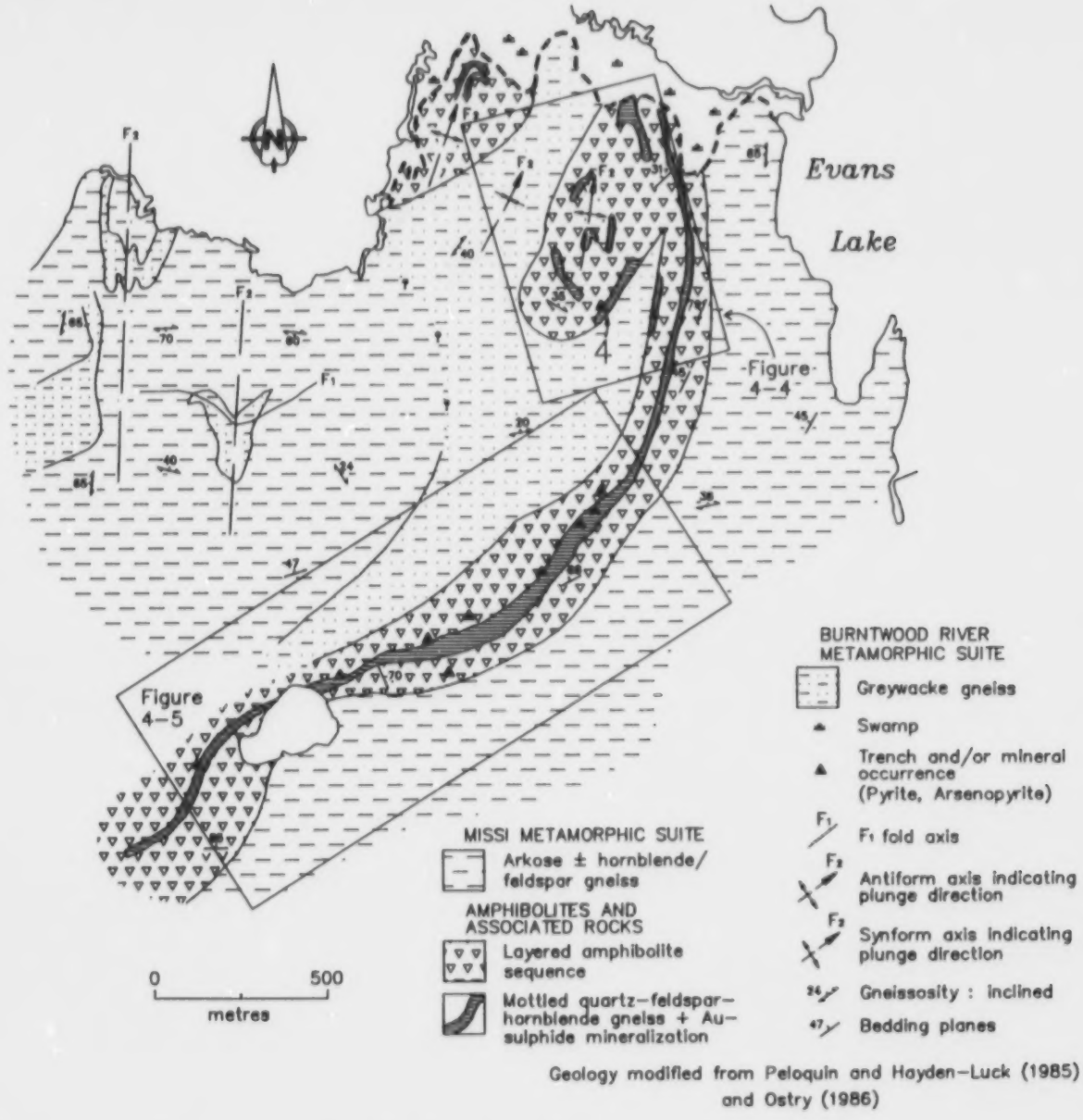


Figure 4-2: General geology west of Evans Lake (modified from Ostry (1986)).

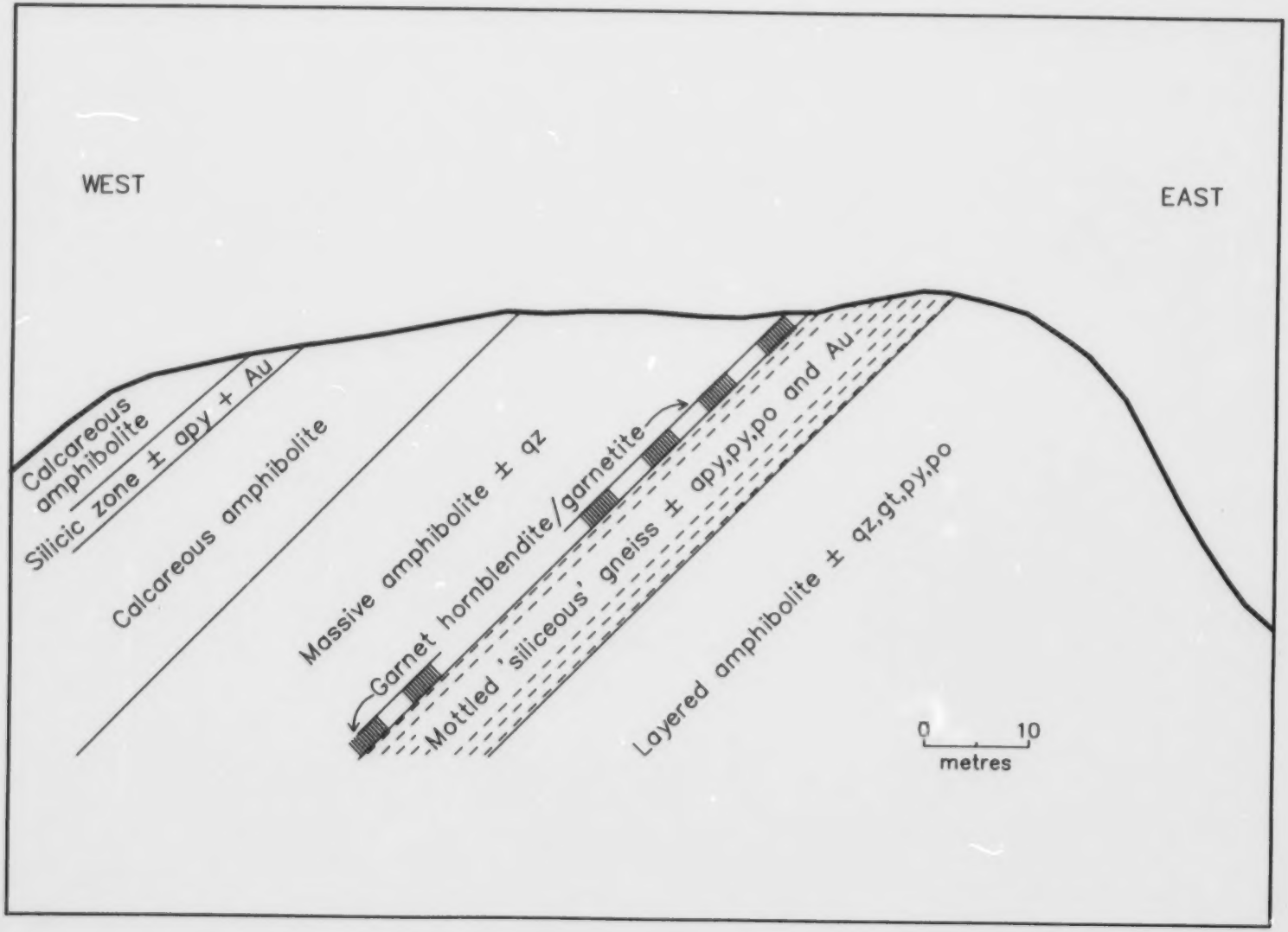


Figure 4-3: ***Schematic section through amphibolite sequence at Evans Lake.***

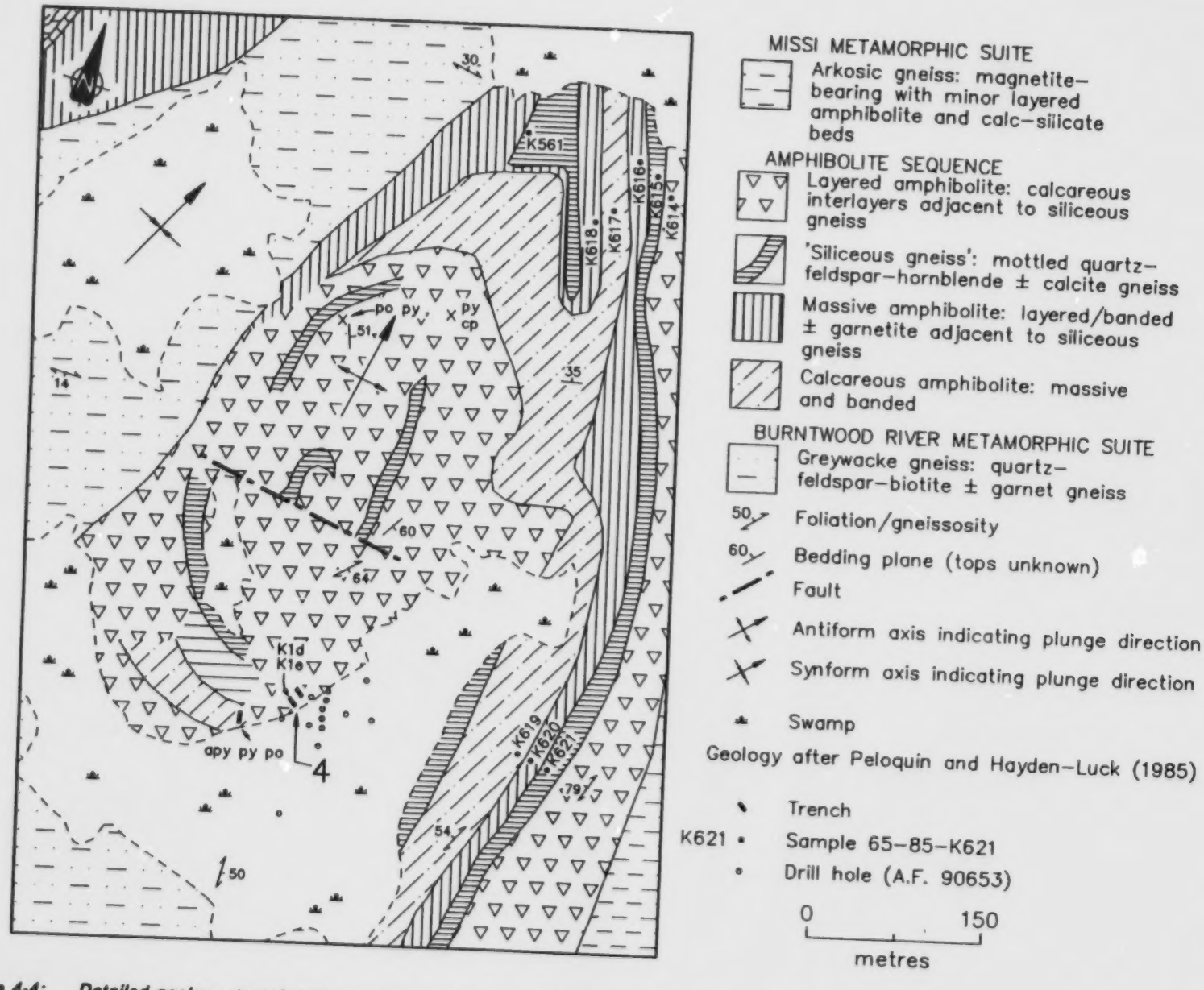
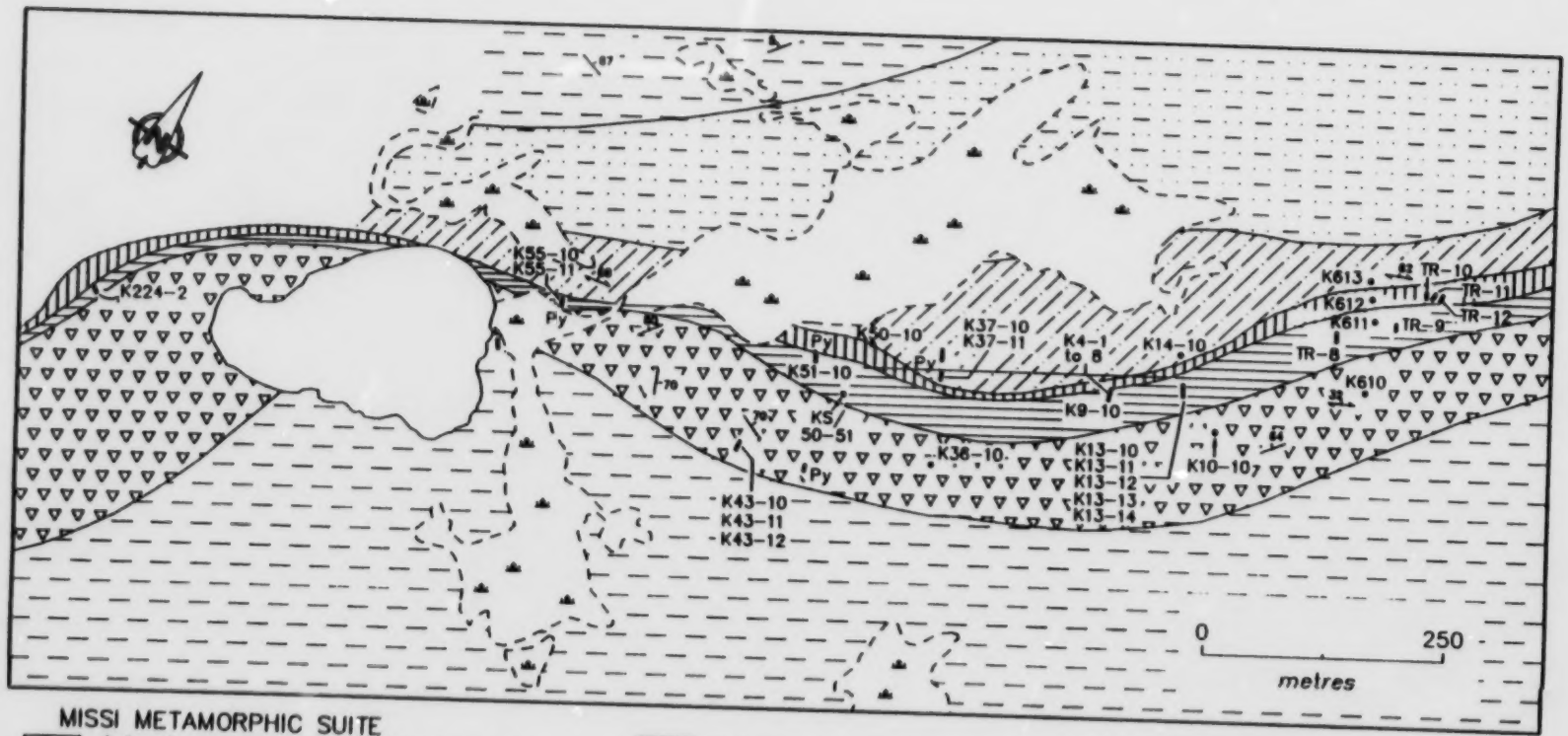


Figure 4-4: Detailed geology, trench and sample locations in the vicinity of location 4.



MISSI METAMORPHIC SUITE

Arkosic gneiss: magnetite–bearing with minor layered amphibolite and calc–silicate beds

AMPHIBOLITE SEQUENCE

Layered amphibolite: calcareous interlayers adjacent to siliceous gneiss

'Siliceous gneiss': mottled quartz–feldspar hornblende ± calcite gneiss

Massive amphibolite: layered/banded ± garnetite adjacent to siliceous gneiss

Calcareous amphibolite: massive and banded

BURNTWOOD RIVER METAMORPHIC SUITE

Greywacke gneiss: quartz–feldspar–biotite ± garnet gneiss

Foliation/gneissosity

Bedding plane (tops unknown)

Swamp

Geology after Peloquin and Hayden–Luck (1985)

Trench

K610 Sample location (Samples prefixed 65–85–)

Figure 4-5: ***Detailed geology, trench and sample locations south of location 4.***

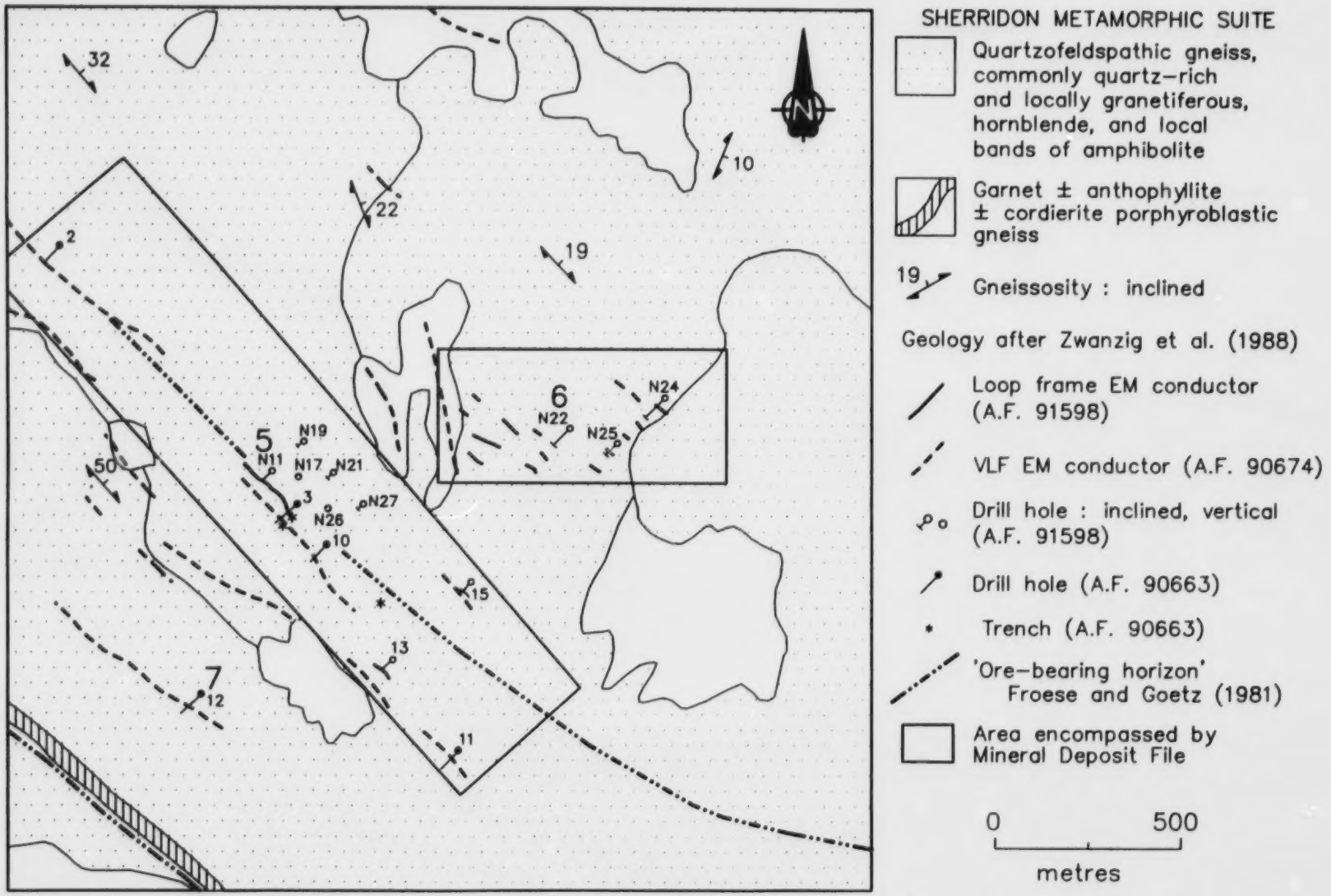


Figure 5-1: General geology, geophysical anomalies, drill hole locations and trench locations at occurrences 5,6 and 7.

LOCATION: 5

NAME: Cu-sulphide property
UTM: 6112542N/373161E
ACCESS: Bush aircraft to Molly or Star Lakes, and traverse.

AREA: 4 km northwest of Elken Lake.
AIRPHOTO: A26327-154

EXPLORATION SUMMARY:

This occurrence known as Cu-sulphide property (Robertson, 1953) has been staked intermittently since 1928. Robertson (1948, 1953) noted several pits during his examination of the occurrence in 1947. The area around the occurrence was staked (NOK 191, 192, 203) in 1957 for HBED. A loop-frame EM survey was completed during the winter of 1957-58 (A.F. 91598). Eight holes (N11, N13, N15, N17, N19, N21, N26, N27) were drilled (total length 1082 m) in 1958 (A.F. 91598). Z. Bighetty staked the occurrence area (COP 7-18) in 1966. VLF-EM, EM and magnetometer surveys were completed during the winter of 1967-68 for Kimberly Copper Mines Ltd. (A.F. 90674) and claims COP 10-18 were assigned to them in 1968. DDH 2, 3, 10 and 11 were drilled (total length 370 m) during the winter of 1968-69 (A.F. 90663). The claims lapsed in 1971. The occurrence area was included in an airborne EM and magnetometer survey performed by Sherritt Gordon Mines Ltd. in 1972 (A.F. 91695). An airborne EM survey was performed for Elken Exploration Ltd. near the occurrence in 1979 (A.F. 92921). During 1980 and 1981, HLEM and magnetometer surveys were performed over portions of the area by Elken (A.F. 92921).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988). The position of an 'ore-bearing horizon' (Fig. 5-1) suggested by Froese and Goetz (1981) includes the Bob Lake and Fidelity massive sulphide type deposits in NTS 63N/3 and is coincident with the main series of EM conductors in the area around the Cu-sulphide property. The drill holes intersect a layered sequence of oligoclase quartz gneiss, quartz-biotite-feldspar ± hornblende gneiss, quartz-hornblende ± biotite gneiss, hornblende-plagioclase ± biotite gneiss and quartzite. Sulphide minerals, chlorite, sericite, sillimanite, graphite, carbonate and/or garnet are locally an important constituent of the rock sequence.

MINERALIZATION:

A number of exploration pits expose pyrrhotite and minor chalcopyrite mineralization hosted by ridgy weathered quartzite (Robertson, 1953). DDH N11, N15, N17, N21, N26 (A.F. 91598), 3 and 10 (A.F. 90663) intersected disseminated iron sulphide mineralization ± chalcopyrite structurally underlain by near solid sulphide layer(s) composed of pyrrhotite, pyrite ± chalcopyrite ± sphalerite. In addition, siliceous sections and local concentrations of chlorite and sericite were observed up hole from the near solid sulphide layers, e.g., DDH N11 (A.F. 91598) intersected approximately 27 m of disseminated sulphide mineralization that contains carbonate stringers and siliceous zones and terminates at a 16 m thick 'mineralized' to near solid pyrrhotite ± pyrite ± chalcopyrite and sphalerite layer. Mineralization encountered down hole from these near solid sulphide layers was recorded in DDH N17, N19, N21, N26 and N27 and comprises disseminated - near solid graphite ± iron sulphide mineralization. DDH 2 and 11 (90663) were collared on strike away from the main concentration of drill holes (Fig. 5-1). Both holes intersect thick sections of disseminated iron sulphide mineralization (plus local concentrations of sillimanite). In these holes chloritic iron sulphide (up to 30%) lenses occur down hole from the disseminated mineralization. In DDH 2 a quartzite (meta-chert?) layer underlies the concentration of sulphide lenses.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Stratabound massive sulphide type deposit; sedimentary rock associated. Due to the presence of disseminated sulphides, chlorite, carbonate and numerous siliceous (silicified ?) sections up hole from the main nongraphitic sulphide mineralization layers, the occurrence is interpreted to represent an overturned massive sulphide type deposit. In addition, the high alumina minerals may indicate sodium depletion, a common feature of alteration associated with massive sulphide type deposits (*cf.* Location 6). A similar gross stratigraphy exists at the Jungle Lake massive sulphide type deposit (Location 3) where graphitic zones occur in the hanging wall gneiss.

The disseminated to near solid graphite ± iron sulphide mineralization encountered down hole from the nongraphitic sulphide mineralization is interpreted to represent a chemical sediment type deposit, i.e., a sulphide facies iron formation. Although only graphite may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980).

REFERENCES:

Assessment Files 90663, 90674, 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Froese, E. and Goetz, P.A.
1981: Geology of the Sherridon Group in the vicinity of Sherridon, Manitoba; Geological Survey of Canada, Paper 80-21, 20p.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 6

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6112539N/374113E

ACCESS: Bush aircraft to Molly Lake or Star Lake, and traverse.

AREA: 4 km west of Star Lake (Fig. 5-1).

AIRPHOTO: A26327-154

EXPLORATION SUMMARY:

The area has been staked intermittently since 1928. NOK 189 and 190 were staked for HBED in 1957. A loop-frame EM survey completed during the winter of 1957-58 defined several stacked single line to 240 m long moderate to strong conductors (A.F. 91598). DDH N22, N24 and N25 were drilled (total length 359 m) in 1958 (A.F. 91598). The area was included in an airborne EM and magnetometer survey performed for Sherritt Gordon Mines Ltd. in 1972 (A.F. 91695). Elken Exploration Ltd. performed VLF-EM and geology surveys over the occurrence in 1979 (A.F. 92921).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 5-1). DDH N22, N24 and N25 intersect a well layered sequence of quartz-hornblende ± biotite ± garnet ± sericite ± chlorite gneiss and hornblende-quartz ± garnet ± biotite ± sericite gneiss.

MINERALIZATION:

Numerous intersections of disseminated pyrrhotite and/or pyrite mineralization were recorded in the drill logs. Stringers of iron sulphide are important locally. A 30 cm section of near solid pyrrhotite within hornblende-quartz gneiss was observed in DDH N22. On surface, disseminations and stringers of pyrrhotite were observed in quartzofeldspathic gneiss (A.F. 92921)

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Vein type deposit; multiple veins or lenses. The lack of plagioclase, local concentrations of chlorite and disseminated sulphide minerals, and the abundance of sericite is suggestive of alteration that is commonly associated with massive sulphide type deposits. Location 6 is also proximal to the mineralization at Location 5, which is classified as a massive sulphide type deposit. The near solid sulphide intersection and stringers of iron sulphide are interpreted to represent late veins of sulphide mobilizate.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 7

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6111911N/373094E

ACCESS: Bush aircraft to Molly Lake (63N/3) or Star Lake, and traverse.

AREA: 4 km northwest of Elken Lake (Fig. 5-1).

AIRPHOTO: A26327-154

EXPLORATION SUMMARY:

The area around the occurrence has been staked intermittently since 1928. Robertson (1948, 1953) examined the area in 1947. In 1957 NOK 202 was staked for HBED. A loop-frame EM survey was carried out during the winter of 1957-58 (A.F. 91598) without finding an anomaly in the occurrence area. Z Bighetty staked COP 16, 17 over the occurrence area in 1966. During the winter of 1967-68 magnetometer and VLF-EM and EM surveys were completed for Kimberly Copper Mines Ltd. in 1968 and a coincident VLF-EM magnetic anomaly was drilled (DDH 12, total length 92 m) in 1969 (A.F. 90663). An airborne EM and magnetometer survey was conducted by Sherritt Gordon Mines Ltd. in 1972, but did not identify any anomalies in the vicinity of the occurrence (A.F. 91695). The area around the occurrence was held (1989) by Noko Resources Inc. (ANGIE 9).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 5-1). DDH 12 intersected massive to banded quartzofeldspathic gneiss with local concentrations of sillimanite and garnet.

MINERALIZATION:

Short sections of less than 5% pyrite and a thin 0.5 cm pyrite vein were recorded in the log.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90663, 90674, 91598, 91695
Manitoba Energy and Mines, Minerals Division.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 8

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6111007N/372981E

ACCESS: Bush aircraft to Molly Lake (63N/3), and traverse using winter road.

AREA: 3 km northwest of Elken Lake.

AIRPHOTO: A26327-155, 156

EXPLORATION SUMMARY:

The area has been staked intermittently since the 1920's. Robertson (1948, 1953) observed a large collapsed pit one mile west of Elken Lake in anthophyllite-bearing rocks, along the northwest shores of the lake.

Subsequent to staking, HBED had a loop-frame EM survey completed in 1958 that included this occurrence (A.F. 90667, 91598). Several strong one and two line anomalies were located as well as two long (300 m, 1100 m) strong conductors. DDH N10, N12, N14, N16 and N18 (total length 343 m) were completed in 1958 (A.F. 90667), but the claims were allowed to lapse. An airborne EM and magnetometer survey by Sherritt Gordon Mines Ltd. in 1972 identified strong anomalies along the same trend as defined by HBED (A.F. 91695). The area has been examined by Froese and Goetz (1980) and Yamada (1984). In 1979 Elken Exploration Ltd. performed reconnaissance geology and VLF-EM surveys in the area (A.F. 92921). A HLEM and magnetometer survey performed in 1980 for Elken delineated an anomaly that corresponded to an anomaly in the 1958 HBED survey (A.F. 92921, 91598). The anthophyllite-bearing rocks along strike to the northwest of the occurrence were examined by Gunter and Yamada (1987). The area around the occurrence was held (1989) by Noko Resources Inc. (ANGIE 1, 5, 6, 10).

GEOLOGICAL SETTING:

The DDH intersected interlayered hornblende-biotite-feldspar ± quartz ± garnet gneiss (A.F. 90667) at or near the contact between Sherridon Metamorphic Suite quartzofeldspathic gneiss and tonalitic to granitic intrusive rocks (Zwanzig *et al.*, 1988; Fig. 8-1).

MINERALIZATION:

DDH N12, N14, N16 and N18 intersected disseminated to near solid pyrrhotite with or without pyrite and 'slight' graphite mineralization. The near solid sulphide layers range in thickness from 7.5 m (DDH N12) to 90 cm (DDH N16).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 90667, 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

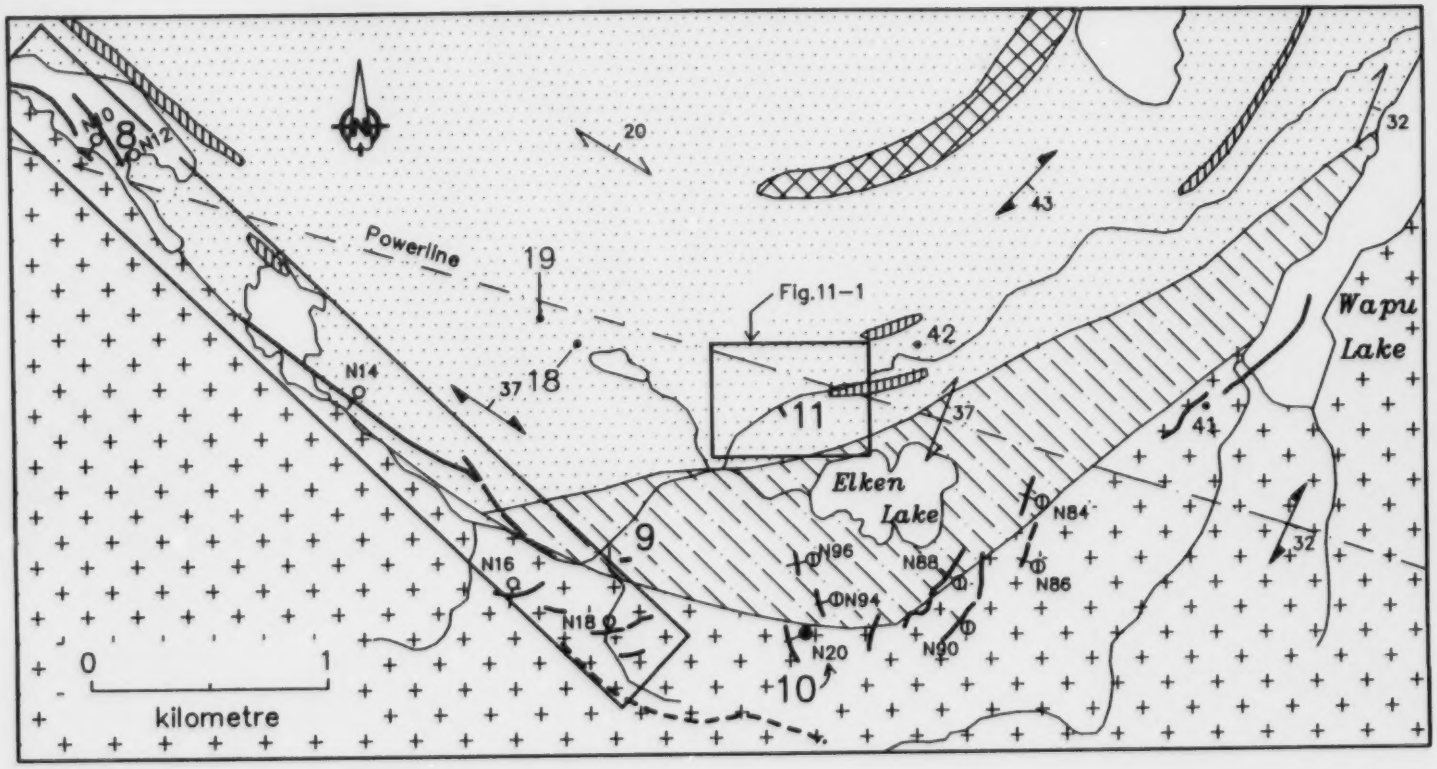
Froese, E. and Goetz, P.A.
1980: Geology of the Sherridon group in the vicinity of Sherridon, Manitoba; Geological Survey of Canada, Paper 80-21, 20p.

Gunter, W.R. and Yamada, P.H.
1987: Industrial mineral occurrences in the Flin Flon, Snow Lake and Thompson areas; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1987, p. 94-103.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Yamada, P.H.
1984: Industrial minerals reconnaissance in the Flin Flon-Snow Lake district; In Manitoba Energy and Mines, Mineral Resources; Report of Field Activities, 1984, p. 68-72.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.



INTRUSIVE ROCKS

Tonalitic to granodioritic orthogneiss

SHERRIDON METAMORPHIC SUITE

Quartzofeldspathic gneiss, commonly quartz rich, ± garnet ± hornblende

Layered amphibolite

Garnet ± anthophyllite ± cordierite porphyroblastic gneiss

Quartzofeldspathic, quartz-rich gneiss, with numerous layers of tonalitic orthogneiss

Schistosity

Gneissosity

Geology after Zwanzig et al (1988).

Trench (A.F. 92921)

VLF-EM anomaly (A.F. 92921)

EM anomaly (A.F. 90667, A.F. 91598, A.F. 91695, A.F. 92921)

Drill hole (A.F. 90667, A.F. 91598)

Drill hole (A.F. 91598)

Drill hole location (A.F. 91598; Appendix III)

Area encompassed by Mineral Deposit File

Figure 8-1: General geology, geophysical anomalies, location of trenches and location of drill holes at occurrences 8, 9, 10 and 11.

LOCATION: 9

NAME:

UTM: 6109255N/374990E

ACCESS: Bush aircraft to Star Lake, and traverse along ridge of outcrop to powerline, then along winter road.

AREA: 800 metres west of Elken Lake (Fig. 8-1).

AIRPHOTO: A26327-156

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. Wright (1929) reports that several prospect pits were seen along the trail half a mile southwest of the Elken Lake occurrence. The area was included in a loop-frame EM survey by HBED during the winter of 1957-58, and in airborne EM and magnetometer surveys by Sherritt Gordon Mines Ltd. in 1972, and Elken Exploration Ltd. in 1979 (A.F. 91598, 91695, 92921). A trench was located by Elken during geologic prospecting in 1979 (A.F. 92921). The locality was held (1990) by Noko Resources Inc. as part of the claim ANGIE 2.

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 8-1), hornblende-rich quartzofeldspathic gneiss and amphibolite (A.F. 92921).

MINERALIZATION:

Wright (1929) reported traces of chalcopyrite, sphalerite and iron sulphides in the pits. Disseminated pyrrhotite ± pyrite within hornblende-rich quartzofeldspathic gneiss and amphibolite is exposed in a trench (A.F. 92921).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Wright, J.F.
1929: Kississing Lake area, Manitoba; In Geological Survey of Canada, Summary Report, 1928, Part B, p. 73B-104B.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 10

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6108912N/375799E

ACCESS: Bush aircraft to Star Lake, and traverse

AREA: 750 metres southwest of Elken Lake (Fig. 8-1).

AIRPHOTO: A26369-70

EXPLORATION SUMMARY:

P. Sherlett, with personnel of Sherritt Gordon Mines Ltd. staked the ELKEN Group of claims in 1928 (Wright, 1929). The claims were optioned by Sherritt Gordon Mines Ltd., who carried out work elsewhere in the group before the claims lapsed. After staking claims NOK 432-434, NOK 437 and NOK 481-483, HBED completed a loop-frame EM survey in 1958 (A.F. 90667, 91598). A two line anomaly was tested by DDH N20 (58 m) in 1958. The area was included in an airborne EM and magnetometer survey by Sherritt Gordon Mines Ltd. in 1972 and in 1979 for Elken Exploration Ltd. (A.F. 91695, 92921). Later in 1979, Elken performed VLF-EM and geological surveys in the area (A.F. 92921). The locality was held (1989) in good standing as part of the claim ANGIE 2 and 3 by Noko Resources Inc.

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 8-1), hornblende-plagioclase gneiss and amphibolite (A.F. 92921). DDH N20 intersected hornblende-quartz-biotite gneiss. Pegmatite dikes occur throughout the drill core.

MINERALIZATION:

DDH N20 intersected 45 cm of near solid pyrrhotite hosted by hornblende-quartz-biotite gneiss. A 1.5 m zone of disseminated pyrrhotite and pyrite ± graphite was also intersected. Two occurrences of minor disseminated iron sulphide within amphibolite were noted in the vicinity (A.F. 92921).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 90667, 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Wright, J.F.
1929: Kississing Lake area, Manitoba; In Geological Survey of Canada, Summary Report, 1928, Part B, p. 73B-104B.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 11

NAME: Elken Lake Group.
UTM: 6109847N/375835E
ACCESS: Bush aircraft to Star Lake, and traverse.

AREA: 250 metres northwest of Elken Lake (Fig. 8-1).
AIRPHOTO: A26369-71

EXPLORATION SUMMARY:

After discovery of chalcopyrite and sphalerite by Phillip Sherlett, he and members of Sherritt Gordon Mines Ltd. staff staked the ELKEN Group in 1928. That summer, twelve trenches were blasted along a 500 foot strike length and five holes were drilled. A series of pits were blasted along the trail half a mile south west of the occurrence (Wright, 1929). After staking of the THOM and NOK Groups (THOM 6, 7, NOK 423) for HBED, employees of the company mapped the geology in the fall of 1957 (A.F. 91459). A loop-frame EM survey done by HBED in the winter of 1957-58 did not identify anomalies in the occurrence area, but a transmission line passes near the occurrence (A.F. 91598). An airborne EM survey performed by Sherritt Gordon Mines Ltd. in 1972 did not delineate anomalies in the vicinity of the occurrence (A.F. 91695). An airborne EM and magnetometer survey performed in 1979 for Elken Exploration Ltd., included the occurrence (A F. 92921). Later that year, Elken performed geological and VLF-EM surveys in the area (A.F. 92921). I. Morrison staked ANGIE 4 in 1986 for Noko Resources Inc. (holder, 1990).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 8-1).

MINERALIZATION:

Wright (1929) describes a 3 to 6 m wide and 150 m long schistose zone within fine grained, bedded quartzite that contains small lenses of sphalerite and chalcopyrite. At this locality Robertson (1953) described a number of trenches that expose pyrrhotite and minor chalcopyrite distributed throughout garnetiferous, ridge weathering quartzite. A geological report included in A.F. 91459 describes a series of trenches (and DDH locations) that expose a 60 cm wide shear zone within quartz-biotite gneiss (Fig. 11-1). This zone contains narrow quartz veins mineralized with disseminated pyrite, chalcopyrite, galena and sphalerite.

GEOCHEMICAL DATA:

Assays of surface samples indicate the presence of gold (Wright, 1929).

CLASSIFICATION:

Vein type deposit; multiple veins or lenses.

REFERENCES:

Assessment Files 91459, 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Robertson, D.S.
1953: Batty Lake Map-Area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Wright, J.F.
1929: Kississing Lake area, Manitoba; In Geological Survey of Canada, Summary Report, 1928, Part B, p. 73B-104B.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

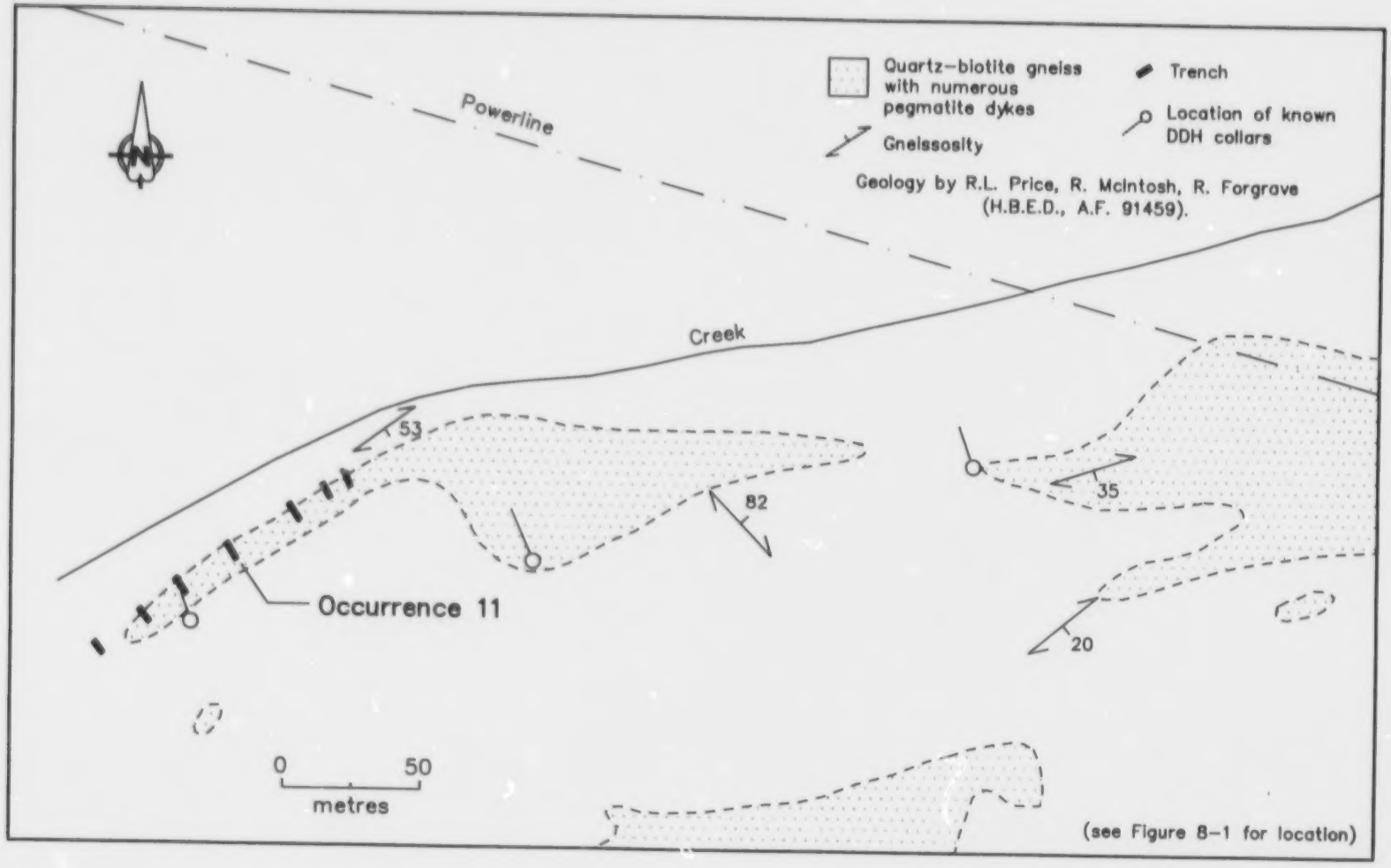


Figure 11-1: General geology and location of trenches and drill holes at occurrence 11.

LOCATION: 12

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6112115N/376129E

ACCESS: Bush aircraft to Star Lake, and traverse.

AREA: 2.1 km west of Star Lake.

AIRPHOTO: A26369-72

EXPLORATION SUMMARY:

The occurrence area has been staked periodically since 1928. In 1957 NOK 109 was staked for HBED. A loop-frame EM survey conducted during the winter of 1957-58 defined several stacked anomalies less than 100 m long (A.F. 91598). DDH N91 and N97 were drilled (198 m total length) in 1959 to test the anomalies and the claim was allowed to lapse.

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 12-1). DDH N91 and N97 intersected interlayered quartz-biotite gneiss, quartz-hornblende gneiss and quartz-carbonate gneiss.

MINERALIZATION:

Both holes intersected disseminated and near solid sulphide mineralization. Two zones of mineralization are described in DDH N91. The first zone includes approximately 11 m of disseminated pyrrhotite hosted by quartz-biotite gneiss that terminates, down hole, in 1 m of 'well mineralized' pyrrhotite and disseminated chalcopyrite. A quartz-carbonate ± pyrrhotite gneiss approximately 3 m thick immediately underlies this zone. The second zone includes a 26 m zone of disseminated pyrrhotite and chalcopyrite mineralization with trace amounts of sphalerite that, near its down hole termination, contains four 0.6 to 1.3 m layers 'mineralized' with pyrrhotite and disseminated chalcopyrite. DDH N97 intersected disseminated pyrrhotite ± pyrite mineralization throughout the hole.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The lack of plagioclase, the relatively thick sections of disseminated sulphide mineralization that end in 'well mineralized' and 'mineralized' pyrrhotite ± chalcopyrite ± sphalerite followed by quartz-carbonate gneiss (zone 1, DDH N91 - chemical sedimentary unit?) is suggestive of alteration and mineralization commonly associated with massive sulphide type deposits.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

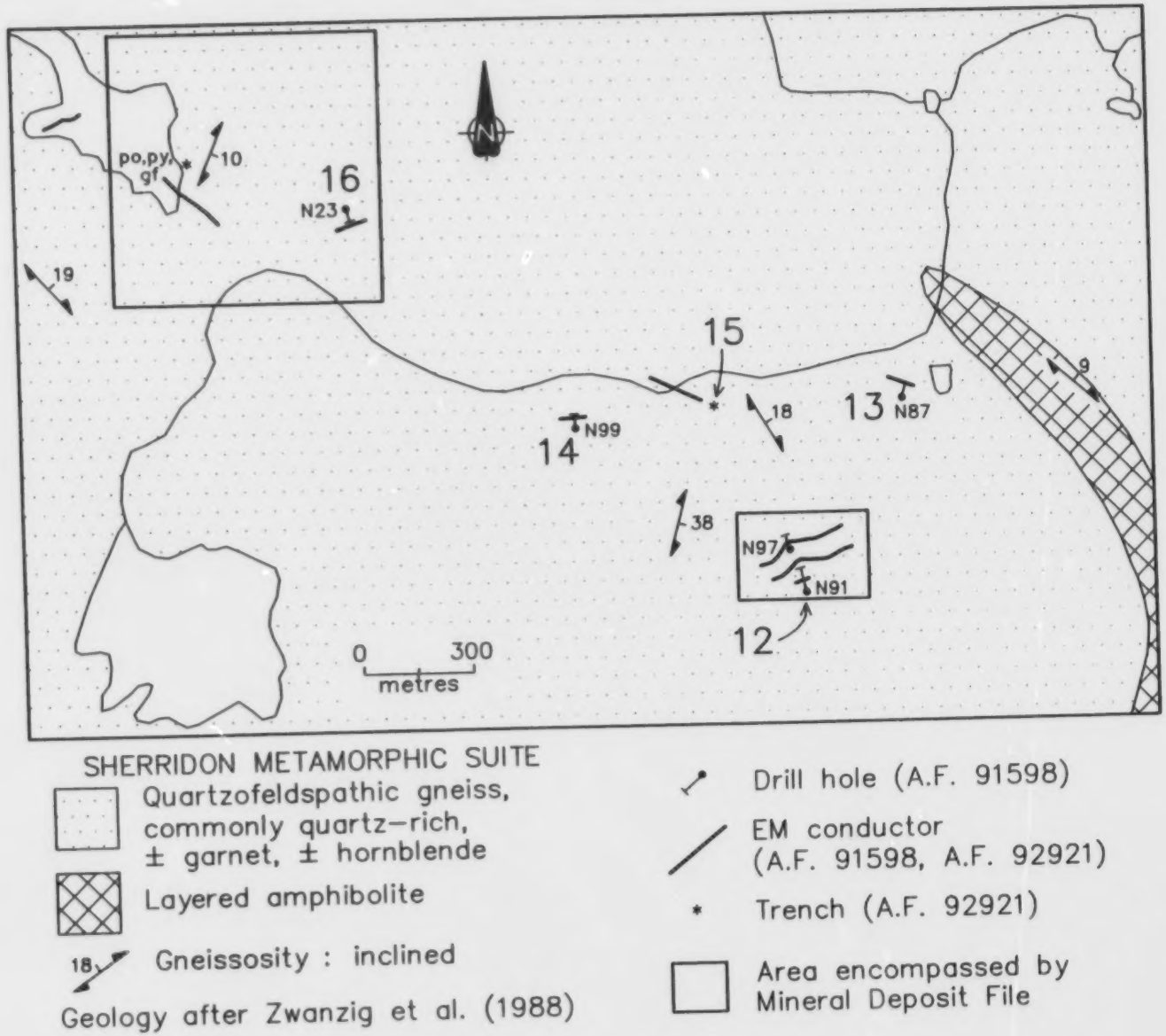


Figure 12-1: General geology, geophysical anomalies and drill hole locations at occurrences 12, 13, 14, 15 and 16.

LOCATION: 13

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6112552N/376345E

ACCESS: Bush aircraft to Star Lake, and traverse.

AREA: 2 km west of Star Lake, and traverse (Fig. 12-1).

AIRPHOTO: A26369-72

EXPLORATION SUMMARY:

The area has been staked intermittently since 1928. In 1957 NOK 184 was staked for HBED. A two line anomaly delineated by a loop-frame EM survey that was conducted during the winter of 1957-58 was tested with DDH N87 (length 73 m) in 1959 (A.F. 91598). The occurrence was included in airborne EM and magnetometer surveys performed for Sherritt Gordon Mines Ltd. in 1972 and for Elken Exploration Ltd. in 1979 (A.F. 91695, 92921).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 12-1). DDH N87 intersected quartz-biotite gneiss.

MINERALIZATION:

Approximately 22 m of disseminated pyrrhotite ± chalcopyrite mineralization within quartz-biotite gneiss were intersected in DDH N87.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 14

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6112570N/375494E

ACCESS: Bush aircraft to Star Lake, and traverse.

AREA: 2.8 km west of Star Lake (Fig. 12-1).

AIRPHOTO: A26369-72

EXPLORATION SUMMARY:

The area has been periodically staked since 1928. After the staking of NOK 186 for HBED in 1957 a loop-frame EM survey was completed during the winter of 1957-58 (A.F. 91598). A single line anomaly was drilled (DDH N99, length 72 m) in 1959 (A.F. 91598). The area was included in airborne EM and magnetometer surveys conducted by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 12-1). DDH N99 intersected gneissic quartzite and quartz-biotite ± garnet gneiss. Accessory chlorite and/or carbonate were observed throughout the core.

MINERALIZATION:

Minor disseminated pyrite mineralization was noted locally within quartz-biotite ± chlorite ± carbonate ± feldspar gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 15

NAME:

UTM: 6112597N/375866E

ACCESS: Bush aircraft to Star Lake, and traverse.

AREA: 2.5 km west of Star Lake (Fig. 12-1).

AIRPHOTO: A26369-72

EXPLORATION SUMMARY:

The occurrence area has been periodically staked since 1928. After the staking of NOK 186 for HBED in 1957 a loop-frame EM survey was completed during the winter of 1957-58 (A.F. 91598). The occurrence area was included in an airborne EM survey conducted by Sherritt Gordon Mines Ltd. in 1972 (A.F. 91695). An airborne EM and magnetometer survey performed in 1979 for Elken Exploration Ltd. included the occurrence (A.F. 92921). Later that year Elken performed reconnaissance geology and VLF-EM surveys in the area and located a trench near the east end of VLF-EM grid 6 (A.F. 92921).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 12-1).

MINERALIZATION:

The trench (A.F. 92921) exposes disseminated pyrrhotite, pyrite and chalcopyrite mineralization hosted by quartz-feldspar ± biotite gneiss (Fig. 12-1).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 16

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6113261N/374858E

ACCESS: By logging and drill roads from Sherridon, Manitoba, and traverse; or bush aircraft to Jungle Lake or Star Lake, and traverse.

AREA: 3.5 km west of Star Lake (Fig. 12-1).

AIRPHOTO: A26327-154

EXPLORATION SUMMARY:

In 1957 the occurrence was staked as NOK 135 for HBED. A loop-frame EM survey performed during the winter of 1957-58 defined a weak two line conductor in the area (A.F. 91598). DDH N23 was drilled (53 m long) for HBED in 1958 to test the anomaly (A.F. 91598). An airborne EM and magnetometer survey performed in 1972 by Sherritt Gordon Mines Ltd. included the occurrence (A.F. 91598). An airborne EM and magnetometer survey performed for Elken Exploration Ltd. in 1979 included the occurrence (A.F. 92921). Later that year, Elken performed VLF-EM and geological surveys in the vicinity of the occurrence and located a trench. (A.F. 92921).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 12-1). DDH N23 intersected hornblende-quartz ± plagioclase ± biotite gneiss and quartz-hornblende-biotite gneiss. The trench, which is located close to the southeast tip of an unnamed lake approximately 400 m west of the drill hole collar, exposes iron stained quartz-feldspar-biotite-garnet gneiss.

MINERALIZATION:

Disseminated pyrrhotite, pyrite and graphite mineralization was observed in the trench. DDH N23 intersected 1.4 m of 'well mineralized' to near solid graphite, pyrrhotite and minor pyrite within the quartz-hornblende-biotite gneiss. Trace amounts of pyrrhotite, pyrite and graphite are common throughout the drill core.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. Although only graphite may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980).

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Gale, G.H., Baldwin, D.A. and Koo J.
1980: A geological evaluation of Precambrian massive sulphide deposit potential in Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-1, 137p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 17

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6113929N/372986E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Jungle Lake, and traverse.

AREA: 2.5 km south of Jungle Lake.

AIRPHOTO: A26327-153

EXPLORATION SUMMARY:

The occurrence area has been staked intermittently since 1942. It was staked in 1957 for HBED (NOK 67-68). A loop-frame EM survey performed during the winter of 1957-58 did not find an anomaly in the area (A.F. 91598). Z. Bighetty staked COP 1 and 2 over the occurrence area in 1966 (cancelled 1970). VLF-EM and magnetometer surveys were completed over the area during the winter of 1967-68 for Kimberly Copper Mines Ltd. (A.F. 90674). Several VLF-EM conductors were located in the vicinity of the occurrence and one was tested with DDH No. 4 (length 93 m) in 1969 (A.F. 90663). The occurrence area was included in an airborne EM and magnetometer survey conducted in 1972 by Sherritt Gordon Mines Ltd., (A.F. 91695).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 17-1). DDH 4 intersected quartz-hornblende ± garnet gneiss.

MINERALIZATION:

Less than 2% disseminated pyrrhotite ± pyrite mineralization was noted in the drill log.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90663, 90674, 91598, 91695
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

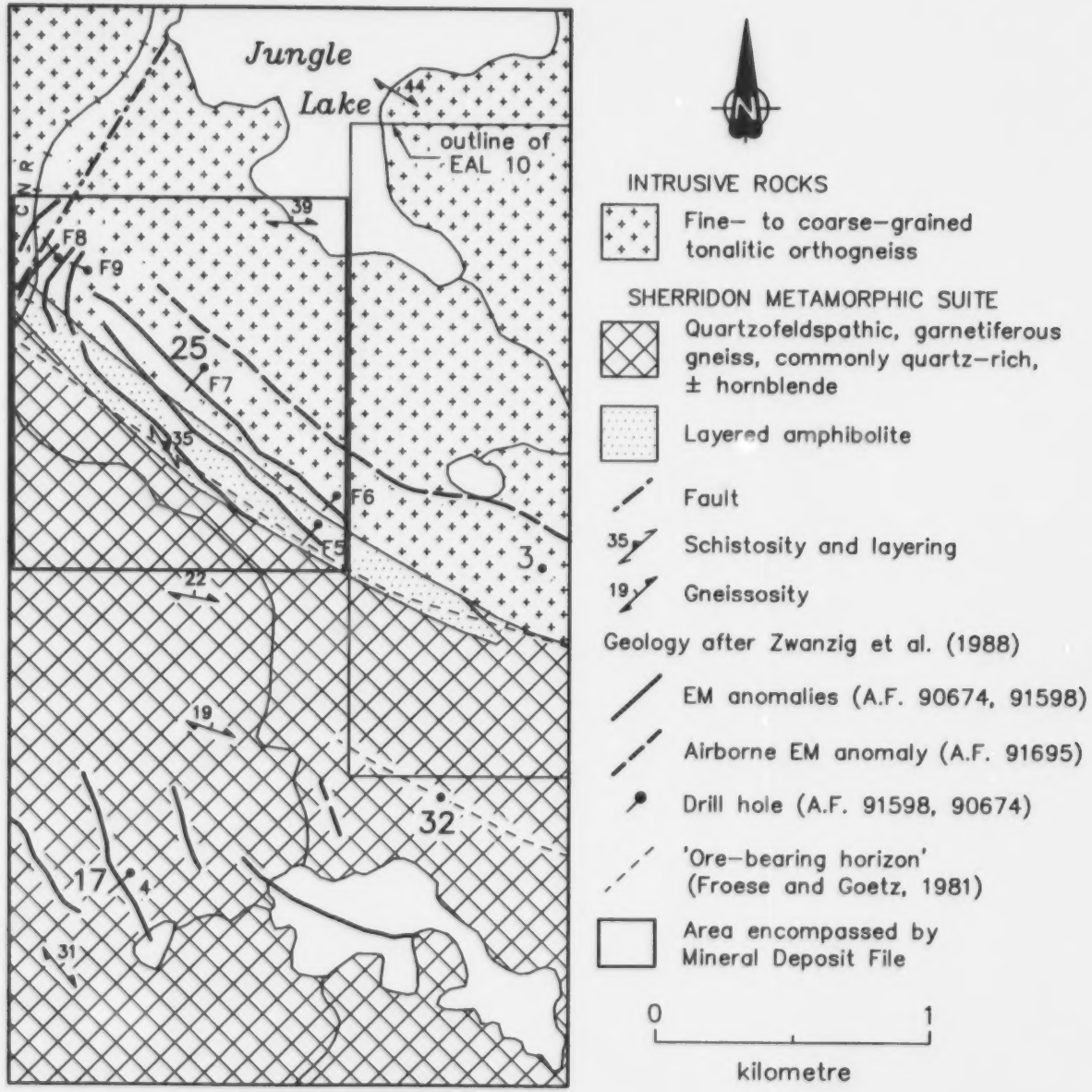


Figure 17-1: General geology, geophysical anomalies and drill hole locations at occurrences 17, 25 and 32.

LOCATION: 18

NAME: Camp Lake sulphide

UTM: 6110107N/374802E

ACCESS: Bush aircraft to Wapu Lake, traverse along ridge to powerline, west along powerline, then traverse approximately 100 metres south (Fig. 18-1).

AREA: 1100 metres northwest of Elken Lake, south of powerline and west of small unnamed lake.

AIRPHOTO: A26327-156

EXPLORATION SUMMARY:

This occurrence, known as Camp Lake Sulphide (Robertson, 1953), has been staked intermittently since 1928. Robertson (1948, 1953) examined the occurrence in 1947 and located a collapsed pit. A loop-frame EM survey was conducted during the winter of 1957-58 by HBED (A.F. 91598). The vicinity of the occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 18-1). Robertson (1953) documented a layer/band of cordierite-anthophyllite gneiss enclosed within gneissic quartzite and arkose in the vicinity of the occurrence.

MINERALIZATION:

Disseminated pyrrhotite ± chalcopyrite mineralization hosted by heavily rusted, cordierite ± anthophyllite gneiss was exposed in a pit (Robertson, 1953).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Replacement type deposit. The unusual mineralogy of the conformable anthophyllite sequence/layers may reflect: 1) the original chemistry of a chemical sedimentary precipitate, with or without mixing during sedimentation; 2) alteration by hydrothermal fluid flow along a structure such as a fault or shear zone and possible transposition; or 3) transposition of an Fe-Mg alteration zone like that commonly associated with massive sulphide type deposits (anthophyllite-bearing rocks exhibit a spatial association with the Sherridon East Cu-Zn massive sulphide deposit in NTS 63N/3).

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

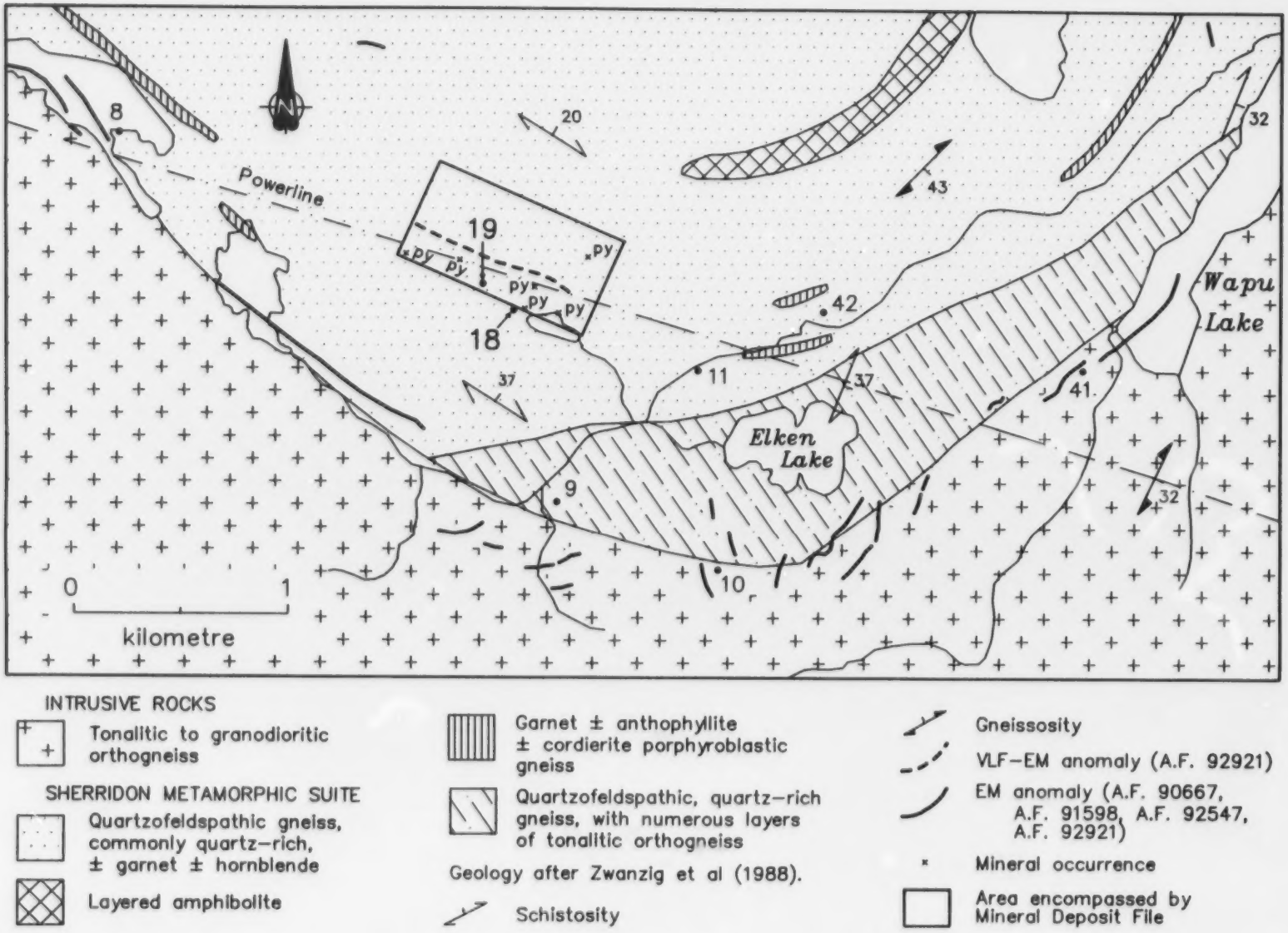


Figure 18-1: General geology and geophysical anomalies at occurrences 18 and 19.

LOCATION: 19

NAME:

UTM: 6110309N/374646E

ACCESS: Bush aircraft to Wapu Lake, traverse along ridge to powerline, west along powerline, then traverse approximately 50 metres south (Fig. 18-1).

AREA: 1.5 km northwest of Elken Lake (Fig. 18-1).

AIRPHOTO: A26327-155

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. The occurrence was included in a loop-frame EM survey performed by HBED during the winter of 1957-58 (A.F. 91598). The vicinity of the occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). Elken performed VLF-EM and geological surveys later in 1979 (A.F. 92921).

GEOLOGICAL SETTING:

The area is underlain by variably garnetiferous, Sherridon Metamorphic Suite quartzofeldspathic gneiss ± hornblende and layered amphibolite (Zwanzig *et al.*, 1988; Fig. 18-1).

MINERALIZATION:

Elken documented pyrite and chalcopyrite mineralization (amount not stated) within a 150 metre wide band of quartz-feldspar-biotite gneiss ± garnet ± hornblende ± magnetite with minor amphibolite (A.F. 92921).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

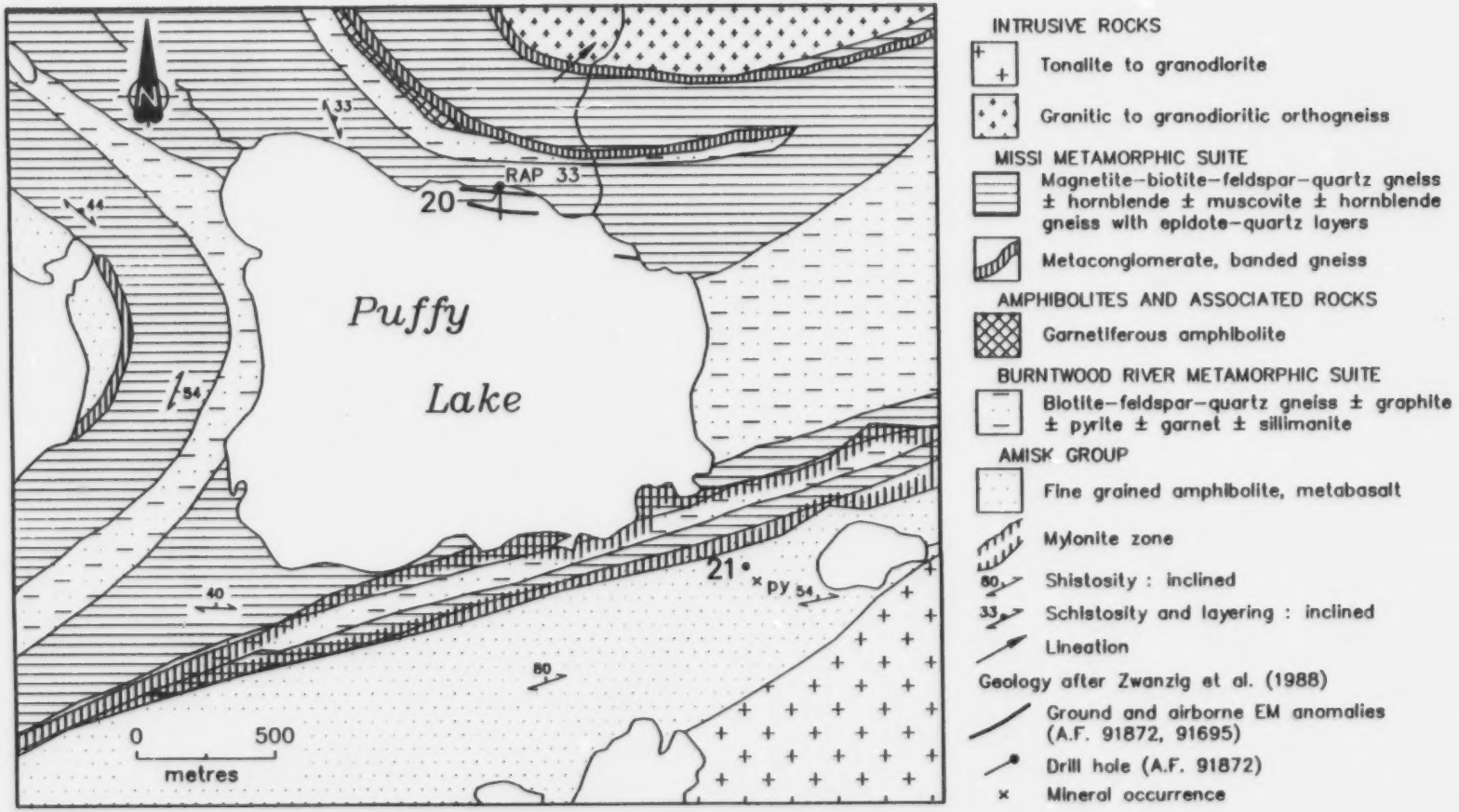


Figure 20-1: General geology, geophysical anomalies and drill hole locations at occurrences 20 and 21.

LOCATION: 20

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6098610N/373896E

ACCESS: Hwy. 10, Sherridon / Fay Lake road, Puffy Lake mine road, and traverse.

AREA: North shore of Puffy Lake.

AIRPHOTO: A26327-164

EXPLORATION SUMMARY:

Prior to 1960 the area was staked several times without recorded work. HBED had the occurrence area staked in 1960 (NIP 16-20). A HLEM survey (A.F. 91872) in 1960 defined two weak anomalies (200 m, 60 m). In 1960 DDH RAP 33 (76 m) was drilled on the longer anomaly (A.F. 91872). The claims were allowed to lapse. An airborne EM survey in 1972 by Sherritt Gordon Mines Ltd., (A.F. 91695) defined a moderate anomaly in the vicinity of the drill hole. J. J. Studer staked PONG 2 (CB 11426) and NUFF 3 (CB 12236) in 1980 for Granges Exploration Aktiebolag. The claims were joint ventured in 1983 with Maverick Mountain Resources Ltd. and are held (1990) by Pioneer Metals Corporation.

GEOLOGICAL SETTING:

The area of the occurrence is underlain by Missi group quartzofeldspathic gneiss (Zwanzig, 1984; Fig. 20-1).

MINERALIZATION:

DDH RAP 33 intersected three zones of 'graphite stringers' within garnet-quartz-biotite (greywacke) gneiss. Two zones are approximately 35 cm in core length and the other zone is approximately 55 cm in core length.

GEOCHEMICAL DATA:

Core samples from the three zones were assayed for Cu, Zn, Au and Ag. Anomalous concentrations were not reported (A.F. 91872).

CLASSIFICATION:

Vein type deposit; multiple veins or lenses.

REFERENCES:

Assessment File 91695, 91872
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; In Manitoba Energy and Mines, Mineral Resources, Report of Field Activities, 1984, p. 38-45.

LOCATION: 21

NAME:
UTM: 6097194N/374778E
ACCESS: Bush aircraft to Puffy Lake.

AREA: Southeast of Puffy Lake (Fig. 20-1).
AIRPHOTO: A26369-62

EXPLORATION SUMMARY:

Robertson (1948) identified a prospect at this locality on his geology map, but did not describe it in the text. The area of the occurrence was staked by G. Custer for C. Dearin in 1983 as PUFF 1. It was transferred to Noko Resources Inc. who prospected the area and collected soil and rock geochemical samples (A.F. 92695) in the fall of 1984. The claim was cancelled in 1986. The area was staked in 1987 by B. Murray for Pioneer Metals Corp., the 1990 holder of the claims in this area.

GEOLOGICAL SETTING:

The area is underlain by Amisk group metabasalt, amphibolite and metagabbro immediately south of a major mylonitic zone (Zwanzig, 1988; Fig. 20-1).

MINERALIZATION:

Less than 1% pyrite occurs as disseminations and foliation parallel 2 mm x 0.5 m stringers at a contact between a very fine- to fine-grained chlorite schist and a coarser grained mottled biotite-quartz-plagioclase gneiss (A.F. 92695)

GEOCHEMICAL DATA:

Geochemical determinations of Cu, Zn, Ag, As and Au concentrations within A1 horizon soil samples and rock samples are presented in A.F. 92695. Anomalous results were not recorded.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 92695
Manitoba Energy and Mines, Minerals Division.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake Map-Area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; In Manitoba Energy and Mines, Mineral Resources, Report of Field Activities, 1984, p. 38-45.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 22

NAME:

UTM: 6102661N/378316E

ACCESS: Bush aircraft to Nokomis Lake and traverse.

AREA: Southeast shore of Nokomis Lake.

AIRPHOTO: A26327-40

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1958. Airborne EM and magnetometer surveys were performed in the area by Sherritt Gordon Mines Ltd. in 1979 (A.F. 91695, 92921). Prospecting and geochemical sampling surveys were performed in the area by Noko Resources Inc. in 1984 (A.F. 92875).

GEOLOGICAL SETTING:

At the occurrence the area is underlain by amphibolite, Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± epidote ± muscovite paragneiss, metaconglomerate, banded gneiss, quartz-rich quartzofeldspathic gneiss ± pebbles and associated rocks (Zwanzig *et al.*, 1988; Fig. 22-1).

MINERALIZATION:

Noko Resources Inc. located: 1) a 'narrow' mineralized quartz stockwork hosted by nonmineralized arkosic gneiss; 2) a trench that exposes 'a narrow, sulphide-mineralized shear zone'; and, 3) an area of highly fractured, silicified and carbonatized amphibolite with minor sulphides (Fig. 22-2; A.F. 92875). Characteristics of the mineralization at these locales were not specified.

GEOCHEMICAL DATA:

A sample from the quartz stockwork contained 110 ppb Au, 639 ppm As and 25 ppm W. Samples of the host arkosic gneiss contained up to 58 ppb Au and 723 ppm As (A.F. 92875). B-horizon soil samples taken over the quartz stockwork area contained up to 440 ppb Au, 2350 ppm As and 18 ppm W. Anomalous base and precious metal concentrations were not detected in rocks from the other mineralized zones.

CLASSIFICATION:

Vein type deposit; stockwork.

REFERENCES:

Assessment Files 91695, 92875, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

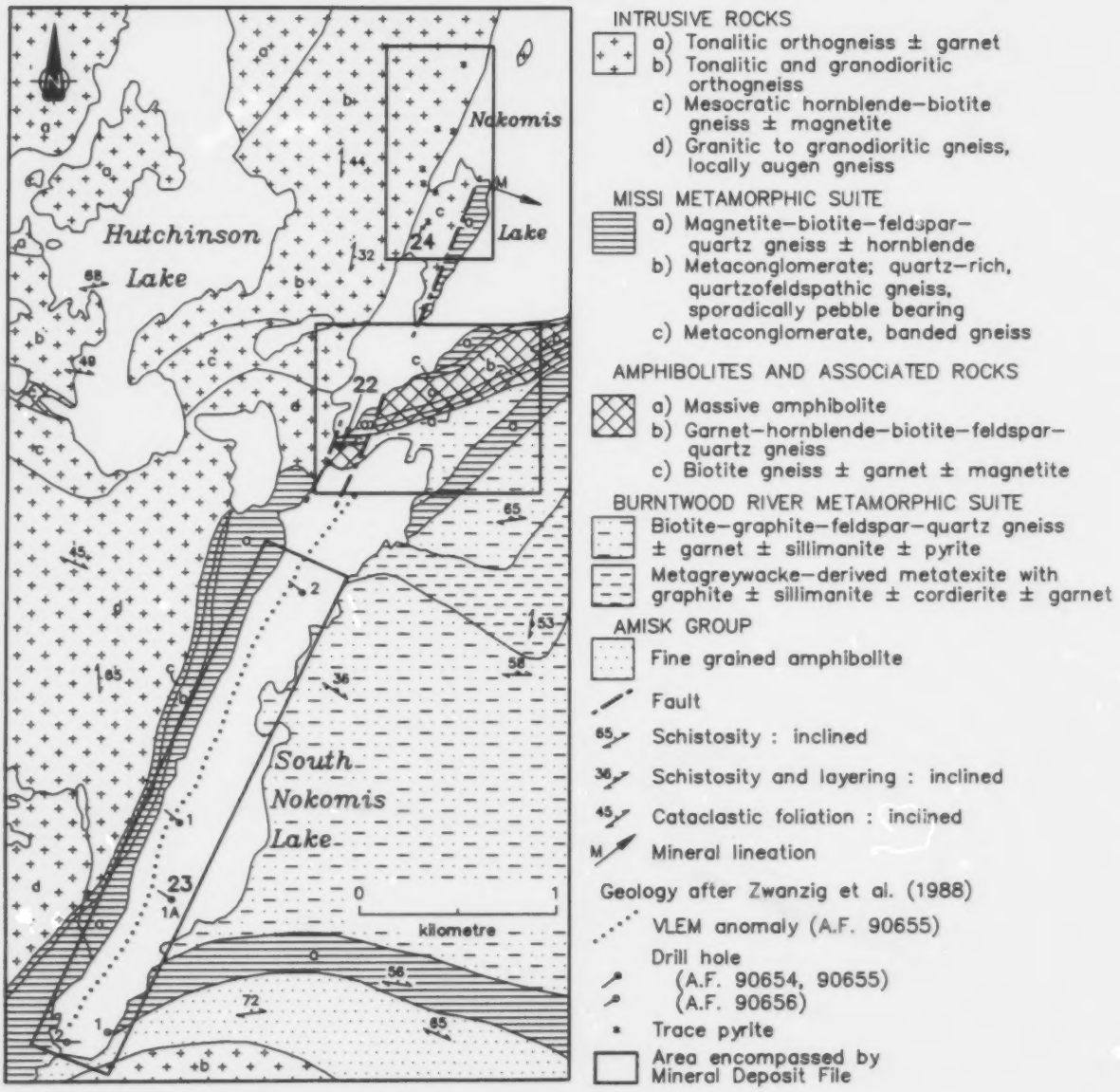


Figure 22-1: General geology, geophysical anomalies and drill hole locations at occurrences 22, 23 and 24.

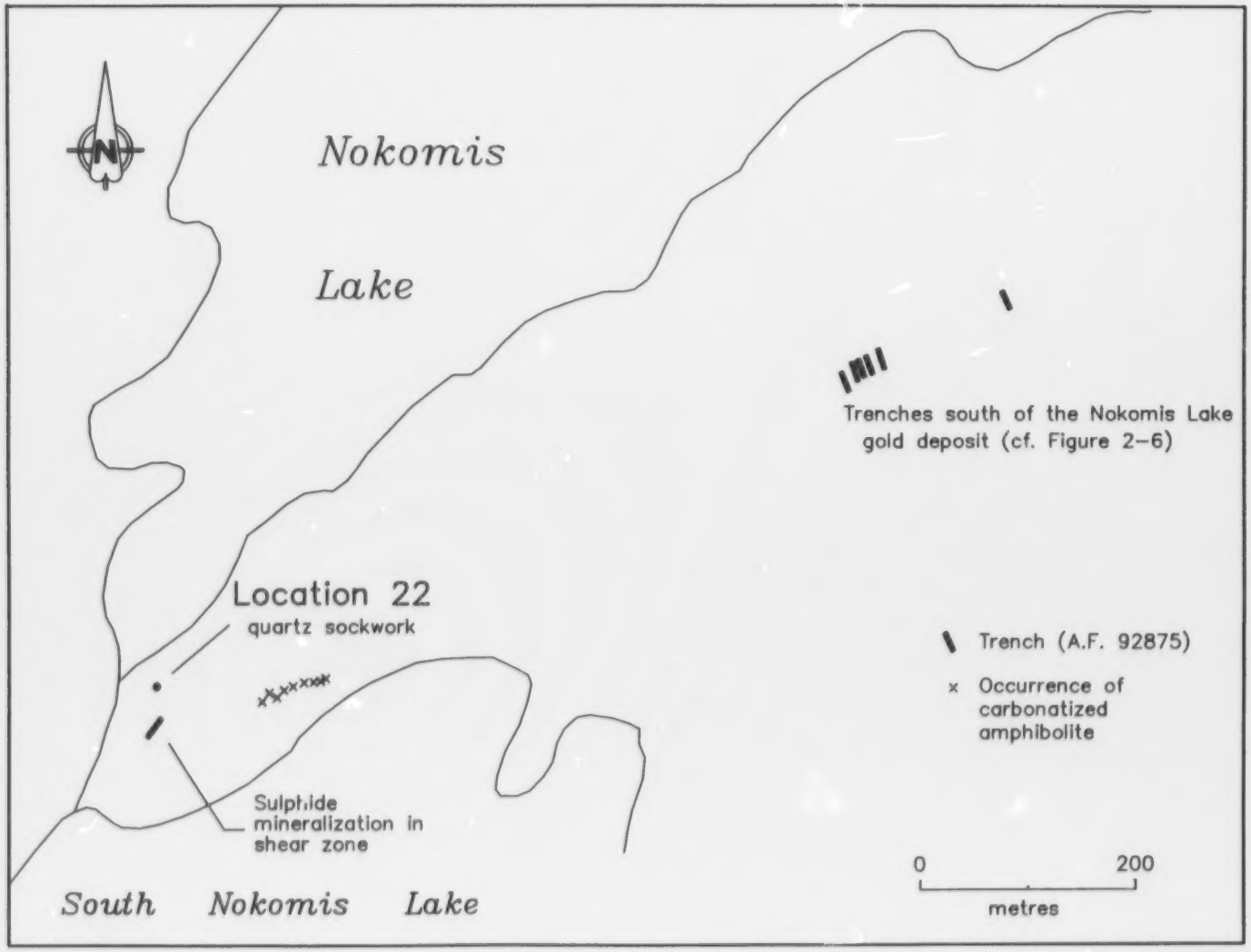


Figure 22-2: Location of mineralized areas in the vicinity of occurrence 22 (modified from A.F. 92875).

LOCATION: 23

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6103716N/378759E

ACCESS: Bush aircraft to South Nokomis Lake.

AREA: South Nokomis Lake (Fig. 22-1).

AIRPHOTO: A26327-38

EXPLORATION SUMMARY:

The area around the occurrence has been staked intermittently since 1956. From 1956 until 1964, several claims (APEX; CONDUCTOR 1-3; TRUMP; TRUMPER; ELBO 12) were staked by H.L. and G.F. Thompson along South Nokomis Lake. DDH #1 and 2 (total length 132 m) were drilled in 1958 (A.F. 90656). The Thompson's optioned the claims to New Consolidated Canadian Exploration Ltd., who completed EM and magnetometer surveys in 1959 (A.F. 90655). The EM survey identified a strong anomaly along the center of the lake. DDH #1, 1A and 2 (total length 349 m) were drilled in 1959 (A.F. 90654, 90655). An airborne EM survey by Sherritt Gordon Mines Ltd. in May, 1972 included the occurrence (A.F. 91695). Noko Resources Inc. prospected along the northwest shore of the lake in 1984 (A.F. 92900). The south Nokomis Lake area was covered (1990) by claim PONG 3 and CB 11427 (Pioneer Metals Corp.), claims TURK 12 and 13 (H.M.D. Company) and claims Noko 14 and 16 (Noko Resources Inc.).

GEOLOGICAL SETTING:

The drill holes were collared on South Nokomis Lake. Greywacke derived gneiss of the Burntwood River Metamorphic Suite and quartzofeldspathic gneiss of the Missi Group crop out on the east and west lake shores, respectively (Zwanzig, 1984; Fig. 22-1). DDH 1 and 2 (A.F. 90656) intersected andesite and andesite schist cut by numerous up to 60 cm wide quartz veins. Feldspar porphyry and gabbro were also intersected in DDH 2. DDH 1-A and 2 (A.F. 90654) intersected interlayered hornblende-plagioclase ± biotite gneiss and granitic gneiss with abundant less than 8 cm quartz ± carbonate and/or epidote veins. DDH 1-A also intersected biotite-plagioclase-garnet (greywacke) gneiss near the top of the hole.

MINERALIZATION:

DDH 1-A intersected disseminated flattened pyrite and chalcopyrite grains over approximately 30 cm in core length within the biotite-plagioclase-garnet gneiss. Down hole, disseminated flattened pyrite grains were noted over a core length of 4 m within a dense, fine grained biotite-hornblende-garnet gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90654, 90655, 90656, 91695, 92900
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; In Manitoba Energy and Mines, Mineral Resources, Report of Field Activities, 1984, p. 38-45.

LOCATION: 24

NAME:

UTM: 6100320N/377381E

ACCESS: Bush aircraft to Nokomis Lake.

AREA: Southwest shore of Nokomis Lake (Fig. 22-1).

AIRPHOTO: A26327-40

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1958. Airborne EM and magnetometer surveys were performed in the vicinity of the occurrence by Sherritt Gordon Mines Ltd. in 1979 (A.F. 91695, 92921). Prospecting and geochemical sampling by Noko Resources Inc. in 1984 located several occurrences of pyrite in the area (A.F. 92900). The locality was held (1990) by Pioneer Metals Corporation as part of the claims JIM 8 and JIM 9.

GEOLOGICAL SETTING:

The area is underlain by mesocratic hornblende-biotite orthogneiss (A.F. 92921) and/or fine- to medium-grained tonalitic gneiss plus Missi Metamorphic suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 22-1).

MINERALIZATION:

Trace amounts of pyrite were noted by Noko at several sites during prospecting.

GEOCHEMICAL DATA:

Several grab samples were submitted for geochemical analysis by Noko. Elevated base and precious metal values were reported. These include up to 57 ppm Cu (NKL-1002), 160 ppm Zn (NKL-1001), 0.1 ppm Ag (all samples) and 29 ppm As (NKL-1001). Anomalous gold concentrations were not reported (A.F. 92900).

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91695, 92900, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

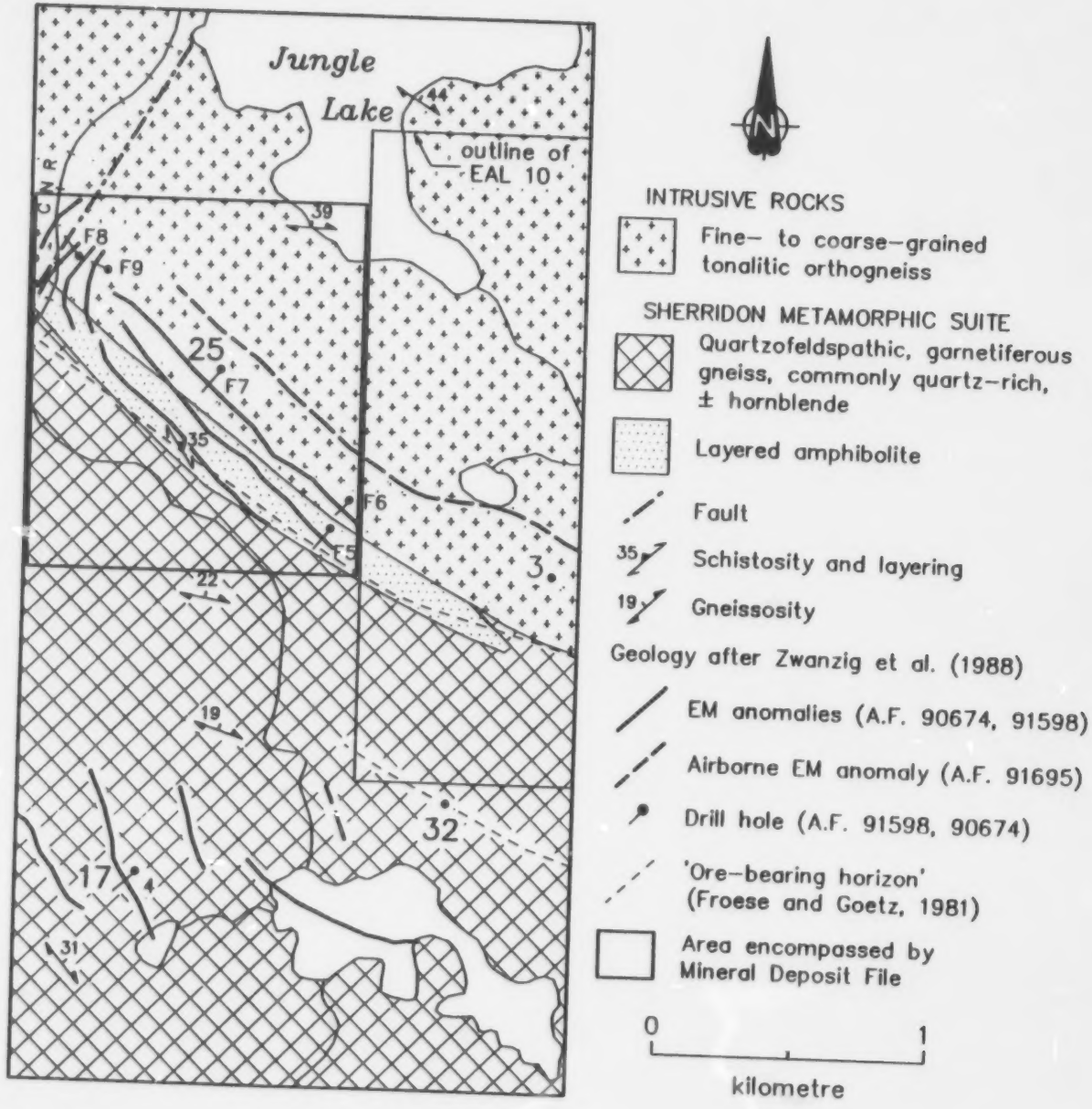


Figure 25-1: General geology, geophysical anomalies and drill hole locations at occurrences 17, 25 and 32.

LOCATION: 25

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6115602N/373295E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Jungle Lake, and traverse.

AREA: 750 metres southwest of Jungle Lake.

AIRPHOTO: A26327-152

EXPLORATION SUMMARY:

The area was staked as part of the FIN Group (FIN 576-7, 584-6, 643-4) in 1957 for HBED. A loop-frame EM survey carried out during the winter of 1957-58 identified several parallel conductors, more than a kilometer long, that were disrupted and terminated (by faulting) at the northwest end of the trend (A.F. 91598). Later in 1958 five holes (F5, F6, F7, F8 and F9) were drilled (total length 469 m) to test the anomalies (A.F. 91598). An airborne EM and magnetometer survey performed in 1972 by personnel of Sherritt Gordon Mines Ltd. included the occurrence (A.F. 91695). S. Bear staked SHE 10533 (CB 10533) over the occurrence in March 1979 for HBED (cancelled 1984).

GEOLOGICAL SETTING:

The series of EM conductors occur proximate to a sequence of layered and massive intermediate gneiss and amphibolite (Fig. 25-1) that separates Sherridon Metamorphic Suite quartzofeldspathic gneiss from intrusive tonalite/granodiorite gneiss (Zwanzig *et al.*, 1988). DDH F5 to F9 intersected a sequence of interlayered hornblende gneiss, quartz-biotite ± garnet gneiss and quartz-hornblende ± garnet gneiss. Quartzite, chlorite and graphite schist (DDH F5), graphite gneiss and quartz-carbonate rock (DDH F7) and hornblendite (DDH F6) were also noted in drill core. The rock sequence has been intruded by numerous pegmatite dikes.

MINERALIZATION:

Trace to minor amounts of disseminated pyrite and/or pyrrhotite and/or graphite mineralization is ubiquitous throughout the core. A 6 cm solid pyrite intersection (mobilizate) hosted by mixed hornblende gneiss and pegmatite was observed in DDH 5. A 75 cm section of graphite gneiss 'mineralized' with pyrite was intersected in DDH F7.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. Although only graphite may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980). The position of the mineralization appears to be on strike and possibly stratigraphically equivalent to the zones of disseminated graphite that occur within the hanging wall quartz biotite gneiss north of the Jungle Lake massive sulphide type deposit (*cf.* Location 3) and the graphitic sulphide facies iron formations interpreted to occur at Locations 26 and 28.

REFERENCES:

Assessment Files 91598, 91695
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

Gale, G.H., Baldwin, D.A. and Koo J.
1980: A geological evaluation of Precambrian massive sulphide deposit potential in Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-1, 137p.

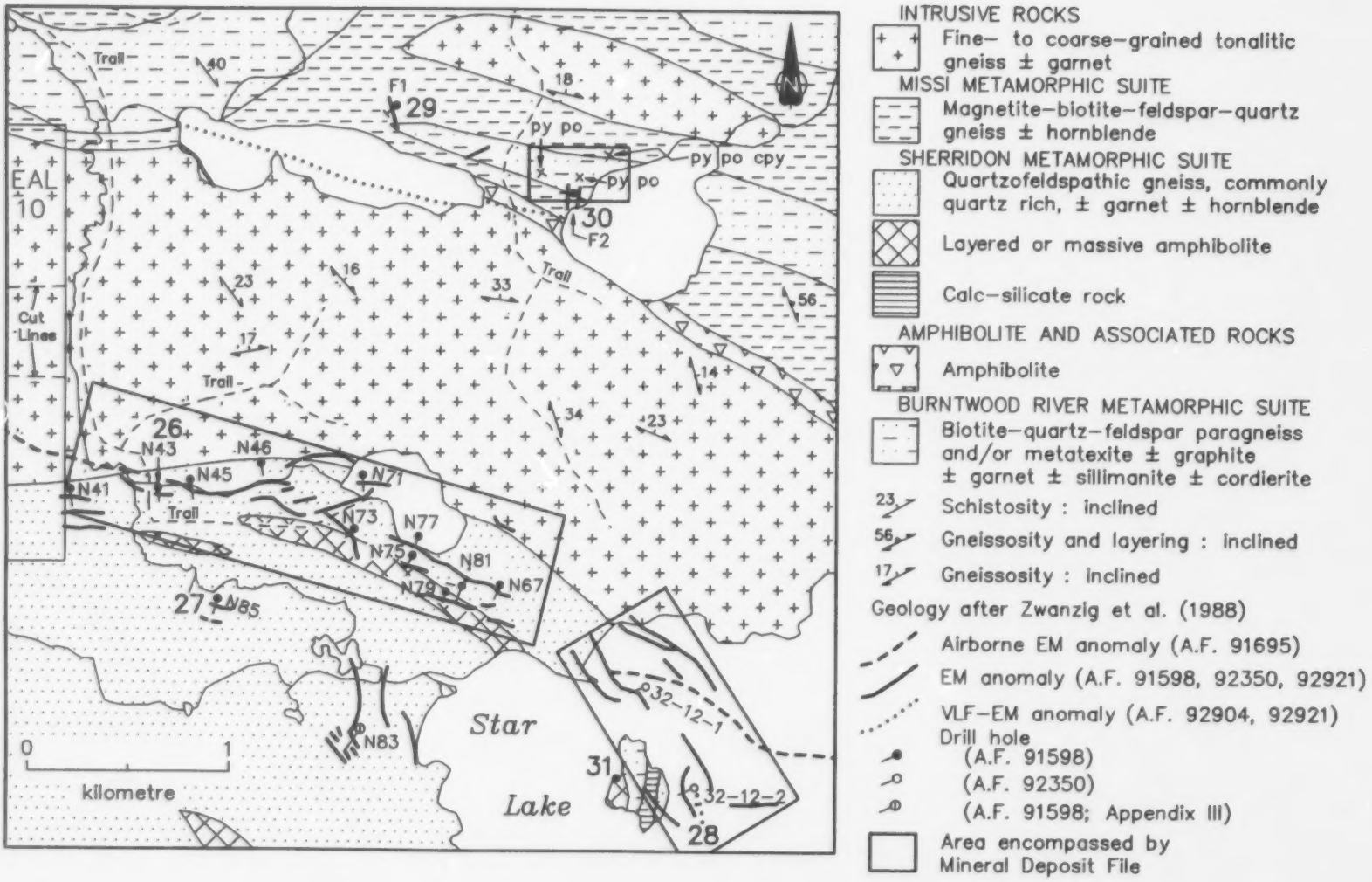


Figure 26-1: General geology, geophysical anomalies and drill hole locations at occurrences 26, 27, 28, 29, 30 and 31.

LOCATION: 26

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6114503N/376424E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Star Lake, and traverse.

AREA: 1 km northwest of Star Lake.

AIRPHOTO: A26327-46, 47, A26369-74

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. A loop-frame EM survey performed during the winter of 1957-58 by HBED identified numerous, discontinuous, subparallel anomalies in the vicinity of the occurrence (A.F. 91598). Eleven DDH (N41, N43, N45, N46, N71, N73 (logs submitted) and N67, N75, N77, N79, N81 (logs not available) were drilled (total length greater than 505 m) in 1958 and 1959 (A.F. 91598). Airborne EM and magnetometer surveys were performed by Sherritt Gordon Mines Ltd. in 1972 and by Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). Elken performed HLEM and magnetometer surveys in the area in 1980 (A.F. 92921).

GEOLOGICAL SETTING:

This series of EM conductors and DDH are located along the north flank of the Sherridon structure proximate to the contact between Sherridon Metamorphic Suite quartzofeldspathic gneiss and intrusive tonalite/granodiorite gneiss (Zwanzig *et al.*, 1988; Fig. 26-1). The predominant lithology encountered in the drill holes is a quartz-hornblende ± biotite ± garnet gneiss. Quartz-plagioclase ± biotite gneiss was intersected and chlorite was observed locally in DDH N71 and N73. Intersections of pegmatite are common throughout the drill core.

MINERALIZATION:

DDH N43 intersected near solid sections of graphite distributed within 5.5 m of quartz-graphite-hornblende gneiss. All holes intersected trace to minor amounts of disseminated graphite and pyrite mineralization. Trace amounts of chalcopyrite associated with the disseminated graphite-pyrite mineralization were observed at one position in DDH N71. Zwanzig *et al.* (1988) noted two occurrences of minor disseminated pyrite hosted by a Sherridon Metamorphic Suite rock sequence comprising intermediate gneiss and layered or massive amphibolite in proximity to the series of EM conductors and DDH.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. Although only graphite may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980). The position if the mineralization appears to be on strike and stratigraphically equivalent to the graphitic sulphide facies iron formation(s) defined at Locations 25 and 28 and the zones of disseminated graphite that occur within the hanging wall quartz biotite gneiss north of the Jungle Lake massive sulphide type deposit (Location 3).

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Gale, G.H., Baldwin, D.A. and Koo J.
1980: A geological evaluation of Precambrian massive sulphide deposit potential in Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-1, 137p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 27

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6113943N/376683E

ACCESS: Bush aircraft to Star Lake, and traverse.

AREA: 1.5 km northwest of Star Lake (Fig. 26-1).

AIRPHOTO: A26369-74

EXPLORATION SUMMARY:

The area has been staked intermittently since 1928. The area around the occurrence was staked in 1957 for HBED as claims NOK 75 and 116. A loop-frame EM survey completed during the winter of 1957-58 delineated several stacked one and two line anomalies (A.F. 91598). DDH N85 (120 m) was drilled in 1959 (A.F. 91598). The occurrence was included in an airborne EM survey performed for Sherritt Gordon Mines Ltd. in 1972 (A.F. 91695). An airborne EM and magnetic survey performed in 1979 for Elken Exploration Ltd. included the occurrence (A.F. 92921).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 26-1). DDH N85 intersected quartz-biotite ± garnet ± chlorite gneiss and quartz-hornblende ± garnet gneiss.

MINERALIZATION:

A 21 m section of quartz-biotite gneiss contains disseminated pyrrhotite and pyrite. Disseminated chalcopyrite and presence of chlorite were noted locally within the section. Down hole, 8 cm and 40 cm 'well mineralized' sections containing pyrrhotite were recorded within this same lithology.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The presence of chlorite within high grade metamorphic rocks of the Kisseynew gneiss belt indicates either a retrograde metamorphic reaction, possibly associated with shearing and/or faulting, or a pre-metamorphic high magnesian content within the rock, as is generated during Fe-Mg metasomatism, like that commonly associated with massive sulphide deposit type mineralization (*cf.* Locations 3, 5).

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 28

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6112894N/379008E

ACCESS: Bush aircraft to Star Lake.

AREA: Star Lake (Fig. 26-1).

AIRPHOTO: A26326-235, A26327-46

EXPLORATION SUMMARY:

The area has been staked intermittently since 1957. An airborne EM and magnetic survey performed in 1972 for Sherritt Gordon Mines Ltd. included the occurrence area (A.F. 91695). An airborne EM and magnetic survey performed in 1979 for Elken Exploration Ltd. included the vicinity of the occurrence (A.F. 92921). HLEM and magnetic surveys were performed in 1980 and 1981 for Elken in the vicinity of the occurrence (A.F. 92350, 92921). Two holes (129 m total length) were drilled for Elken in 1981 (A.F. 92350).

GEOLOGICAL SETTING:

This series of EM conductors and DDH are located along the north flank of the Sherridon structure proximate to the contact between Sherridon Metamorphic Suite quartzofeldspathic gneiss and intrusive tonalite/granodiorite gneiss (Fig. 26-1; Zwanzig *et al.*, 1988). Layers of intermediate gneiss-amphibolite, calc-silicate gneiss-marble and Burntwood River Metamorphic Suite rock occur at or near this contact. The drill holes intersected a layered sequence of siliceous gneisses that include quartz-plagioclase-biotite/chlorite ± garnet ± epidote gneiss, quartz-plagioclase-biotite-diopside gneiss, metaquartzite layers and granitic to monzonitic rock.

MINERALIZATION:

DDH 32-12-1 intersected an approximately 9 m thick near solid to solid graphite and pyrite layer, and DDH 32-12-2 intersected near solid to solid pyrrhotite/pyrite with graphite/pyrite sections over approximately 65 cm, both hosted by siliceous (quartz-rich?) gneiss.

GEOCHEMICAL DATA:

Mineralized sections of the core were assayed for Au, Ag, Cu, Zn and Pb (A.F. 92350). Anomalous concentrations were not reported.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. The position of the mineralization appears to be on strike and stratigraphically equivalent to the graphitic sulphide facies iron formation(s) defined at Locations 25 and 26. These sulphide strata may also be stratigraphically equivalent to the zones of disseminated graphite within the hanging wall quartz biotite gneiss north of the Jungle Lake massive sulphide type deposit (Location 3).

REFERENCES:

Assessment Files 91695, 92350, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 29

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6116347N/377695E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: 3 km southwest of Walton Lake (Fig. 26-1).

AIRPHOTO: A26327-48

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1957. A loop-frame EM survey performed by HBED during 1957-58 identified several anomalies on claims FIN 527, 565, 566 and 568 (A.F. 91598). DDH FI was drilled (66 m total length) in 1958 (A.F. 91598). The vicinity of the occurrence was included in airborne EM and magnetic surveys by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd., in 1979 (A.F. 91695, 92921). Noko Resources Inc. performed VLF-EM, magnetic, CEM (horizontal loop mode), and geological prospecting surveys in the vicinity of the occurrence in 1985 (A.F. 92904).

GEOLOGICAL SETTING:

The area is underlain by Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite gneiss (Zwanzig *et al.*, 1988; Fig. 26-1). The DDH intersected quartz-hornblende ± garnet gneiss.

MINERALIZATION:

'Narrow' sections of near solid pyrrhotite and pyrite are distributed within a 25 m thick quartz-hornblende gneiss layer.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 91598, 91695, 92904, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 30

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6115889N/378520E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: 3.5 km southwest of Walton Lake (Fig. 26-1).

AIRPHOTO: A26327-48

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1957. During the winter of 1957-58, HBED performed a loop-frame EM survey that defined several anomalies in the vicinity of the occurrence (A.F. 91598). HBED tested an anomaly on FIN 564 with DDH F2 (total length 76 m) in 1958 (A.F. 91598) Airborne EM and magnetic surveys by Sherritt Gordon Mines Ltd., in 1972 and Elken Exploration Ltd. in 1979 included the vicinity of the occurrence (A.F. 91695, 92921). Later in 1979 Elken performed VLF-EM and geological surveys in the vicinity of the occurrence.

GEOLOGICAL SETTING:

DDH F2 was collared at or near the contact between Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite paragneiss and Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Fig. 26-1; Zwanzig *et al.*, 1988). DDH F2 intersected quartz-hornblende ± garnet ± biotite gneiss. Surface geological maps in the vicinity identify a sequence of hornblende-plagioclase-garnet amphibolite, hornblende-plagioclase-carbonate amphibolite and plagioclase-biotite-garnet ± graphite gneiss intruded by granite/granodiorite and pegmatite (A.F. 92921).

MINERALIZATION:

In DDH F2, two sections, 1.2 and 7.3 m in core length, contain disseminated graphite with trace amounts of pyrite mineralization. An 18 cm thick near solid (?) pyrrhotite band/layer was intersected further down hole. On surface, minor amounts of disseminated pyrite, chalcopyrite and pyrrhotite mineralization within plagioclase-biotite-garnet gneiss and disseminated pyrite and pyrrhotite mineralization within hornblende-plagioclase-carbonate-garnet amphibolite were documented.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 91598, 91695, 92921

Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.

1988:

Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 31

NAME:

UTM: 6112963N/378654E

ACCESS: Bush aircraft to Star Lake.

AREA: Island in Star Lake (Fig. 26-1).

AIRPHOTO: A26327-46

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. This area was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). The occurrence was examined by Zwanzig *et al.* (1988). The locality is currently (1990) held by A.L. Parres Ltd. as part of the claim ROS 1.

GEOLOGICAL SETTING:

The area is underlain by massive amphibolite of the Sherridon Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 26-1).

MINERALIZATION:

Minor amounts of disseminated pyrite are present at this locality (Zwanzig *et al.*, 1988).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 32

NAME:

UTM: 6114101N/374007E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or Bush aircraft to Jungle Lake and traverse along old drill roads.

AREA: 2 km south of Jungle Lake.

AIRPHOTO: A26327-153

EXPLORATION SUMMARY:

The occurrence has been staked intermittently since 1956. A loop-frame EM survey performed by HBED during the winter of 1957-58 included the vicinity of the occurrence (A.F. 91598). An airborne EM and magnetometer survey performed in 1972 by Sherritt Gordon Mines Ltd. included the vicinity of the occurrence (A.F. 91695).

GEOLOGICAL SETTING:

The area is underlain by garnetiferous, Sherridon Metamorphic Suite quartzofeldspathic gneiss ± hornblende (Zwanzig *et al.*, 1988; Fig. 32-1).

MINERALIZATION:

The only information available for this location is the indication of a sulphide occurrence that was considered to be part of an 'ore-bearing horizon' that is stratigraphically equivalent to the position of the Bob Lake and Fidelity massive sulphide type deposits in 63N/3 (Froese and Goetz, 1981).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695
Manitoba Energy and Mines Minerals Division.

Froese, E. and Goetz, P.A.
1981: Geology of the Sherridon Group in the vicinity of Sherridon, Manitoba; Geological Survey of Canada, Paper 80-21, 20p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

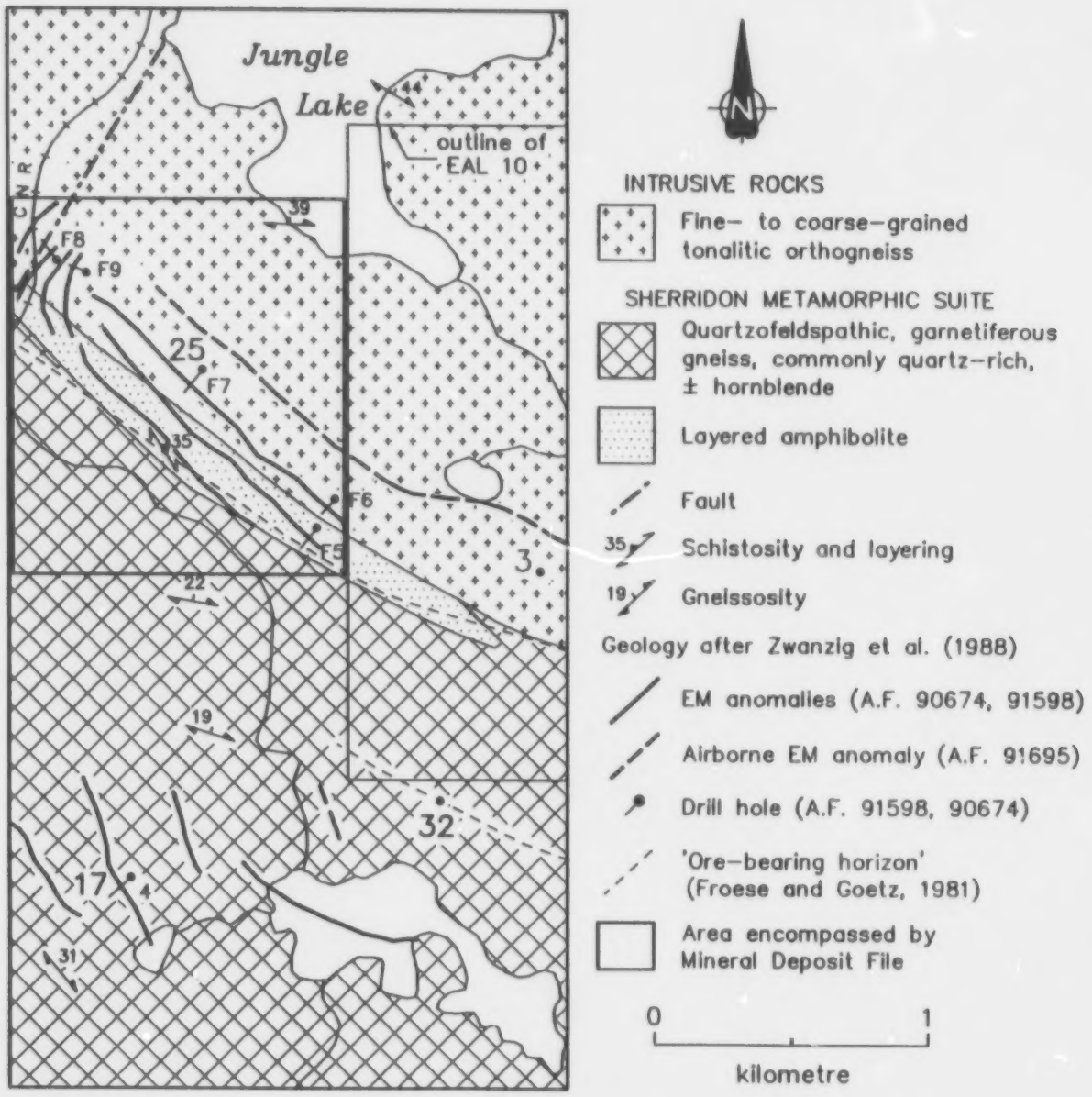


Figure 32-1: General geology, geophysical anomalies and drill hole locations at occurrences 17, 25 and 32.

LOCATION: 33

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6102224N/375309E

ACCESS: Bush aircraft to Hutchinson Lake, and traverse.

AREA: 1 km south of Hutchinson Lake.

AIRPHOTO: A26369-66

EXPLORATION SUMMARY:

The occurrence area was staked for HBED in 1960 as RAP 6-8. They did HLEM geophysics and tested a one line anomaly with a 63 m hole (RAP 18) in 1960 (A.F. 90662, 91872). O. Chaboyer staked HOPE 24 over the area in 1968 (cancelled 1970). Sherritt Gordon Mines Ltd., included the area in an airborne EM and magnetometer survey in 1972 but did not detect an anomaly. J.J. Studer staked TOON 1 for H.H. Shear in 1983 (cancelled 1985). W.F. Heidman staked TURK 8 for H.M.D. Company in 1985. In 1987 the claim was transferred to Pioneer Metals Corp..

GEOLOGICAL SETTING:

The area is underlain by garnet-hornblende-biotite-feldspar gneiss (Zwanzig *et al.*, 1988; Fig. 33-1). DDH RAP 18 intersected garnetiferous biotite-quartz gneiss, granite and chlorite schist.

MINERALIZATION:

Pyrrhotite and pyrite mineralization were intersected in two zones, 30 cm and 1.7 m wide, hosted by garnetiferous biotite-quartz gneiss. The 30 cm intersection and 80 cm of the 1.7 m intersection were observed to contain 'abundant' (interpreted as near solid sulphide) pyrrhotite and pyrite.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 90662, 91695, 91872
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, A.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

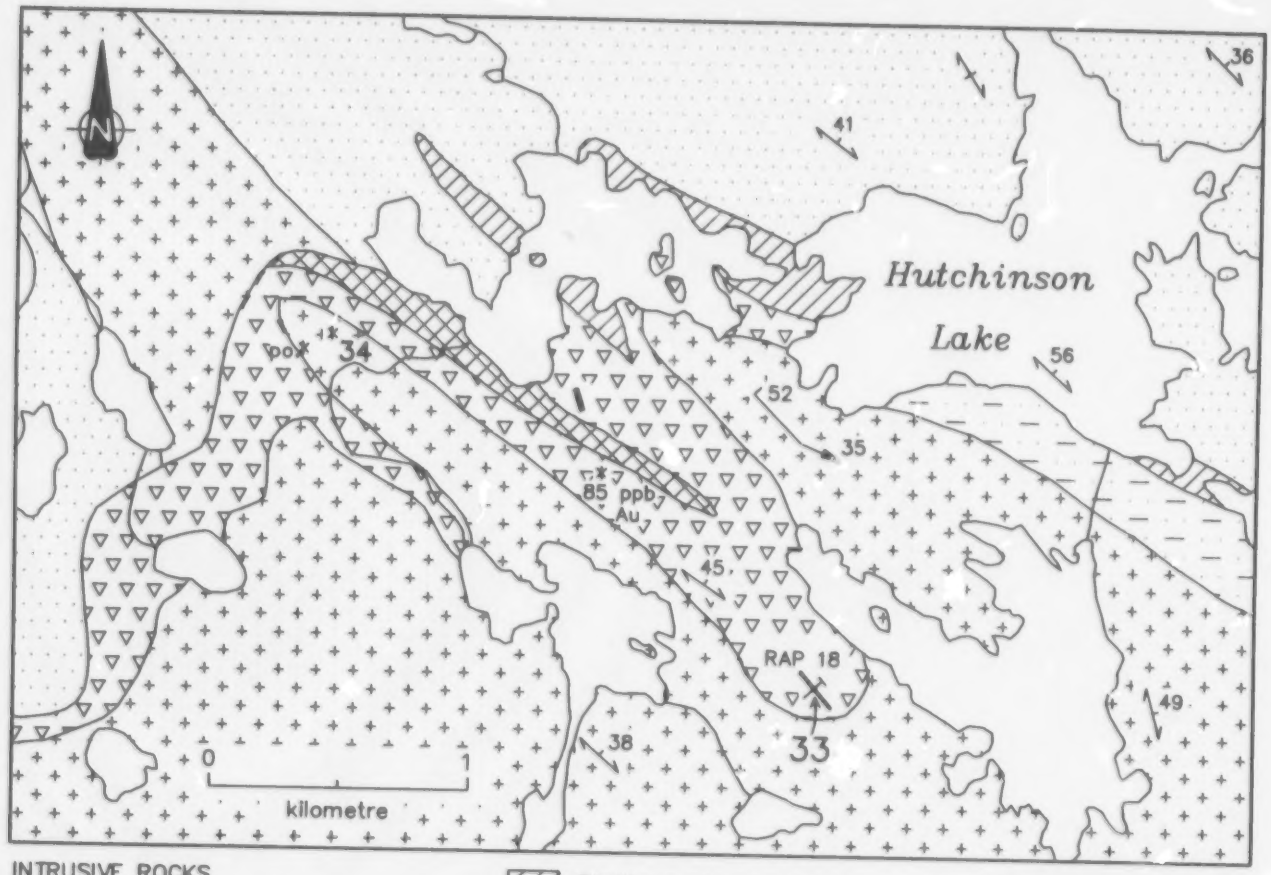


Figure 33-1: General geology, geophysical anomalies and drill hole locations at occurrences 33 and 34.

LOCATION: 34

NAME:

UTM: 6103510N/373418E

ACCESS: Bush aircraft to Hutchinson Lake.

AREA: 2 km west of Hutchinson Lake (Fig. 33-1).

AIRPHOTO: A26327-160

EXPLORATION SUMMARY:

Several weak anomalies were defined in the area during a 1972 airborne EM survey for Sherritt Gordon Mines Ltd. (A.F. 91695). G. Moodie staked NOKO 2 for C. Dearin in 1983 and the claim was transferred to Noko Resources Inc. In 1984 and 1986 they prospected the area and undertook rock and soil geochemical prospecting (A.F. 92798. 92900). During the 1984 program a trench was located on the Noko 2 claim. The claim was cancelled in 1988.

GEOLOGICAL SETTING:

The area is underlain by garnet-hornblende-biotite-feldspar-quartz gneiss, calcareous amphibolite and tonalitic intrusive rocks. (Zwanzig *et al.*, 1988; Fig. 33-1).

MINERALIZATION:

Less than 1% disseminated pyrite plus pyrrhotite occurs within calcareous amphibolitic rocks (A.F. 92798).

GEOCHEMICAL DATA:

Geochemical determinations of Cu, Zn, Ag, As and Au concentrations within A1 horizon soil samples and rock samples are presented in A.F. 92900. A rock sample of garnet-hornblende-biotite-feldspar-quartz gneiss taken on the NOKO 2 claim contained 85 ppb Au (Fig. 33-1). Geochemical determinations of 31 elements that include Cu, Zn, Ag, As and Au concentrations within B horizon soil samples and rock samples collected in 1986 are presented in A.F. 92798. Anomalous results were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 91695, 92798, 92900
Manitoba Energy and Mines, Minerals Division.

Robertson, D.S.
1953: Batty Lake map-area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, A.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

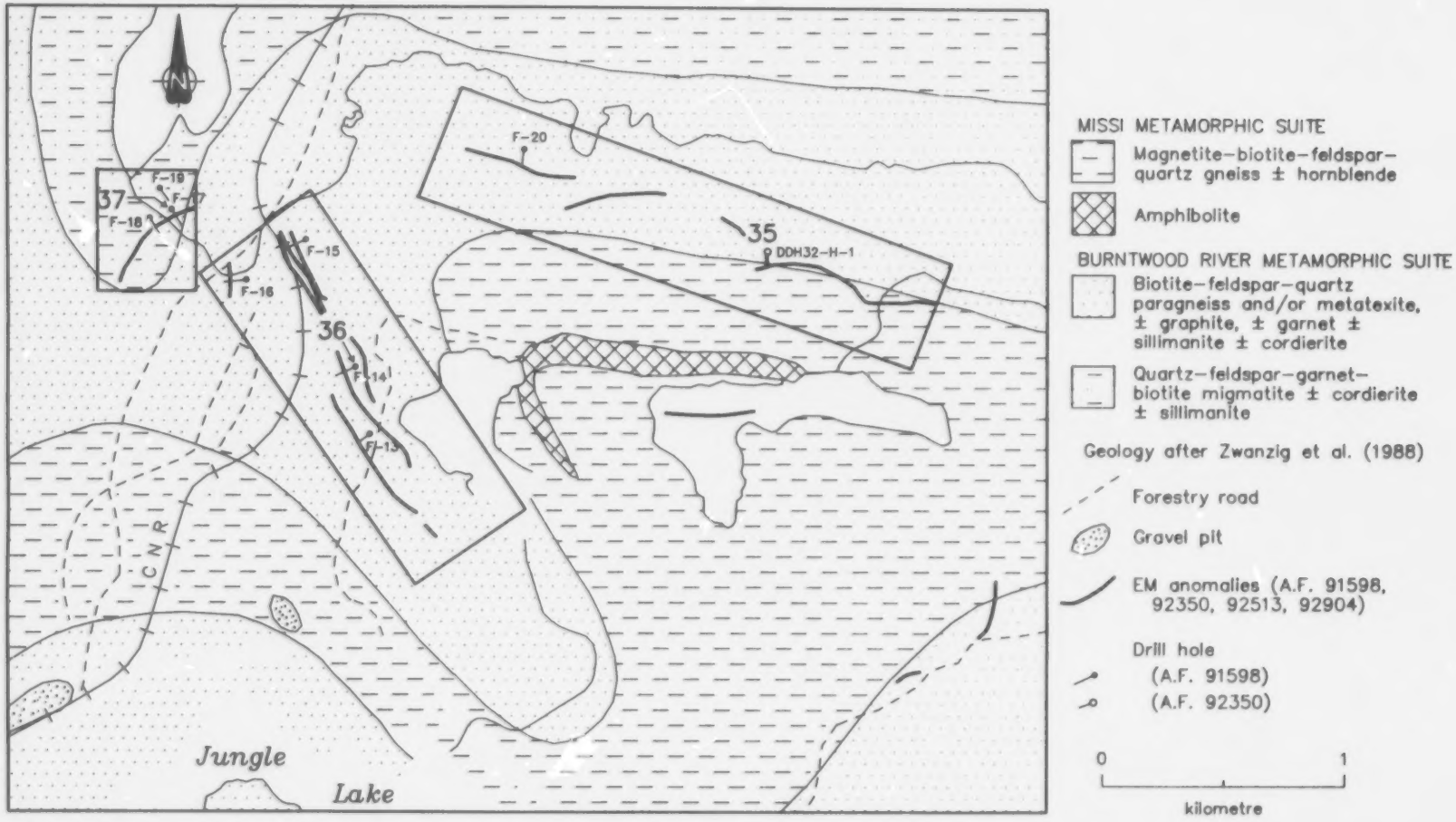


Figure 35-1: General geology, geophysical anomalies and drill hole locations at occurrences 35, 36 and 37.

LOCATION: 35

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6119295N/376754E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: 2 km west of Walton Lake.

AIRPHOTO: A26369-77

EXPLORATION SUMMARY:

FIN 306 and FIN 307 were staked in 1957 for HBED in the vicinity of the occurrence. A loop-frame EM survey performed during the winter of 1957-58 delineated a single line anomaly and a 330 m anomaly in the vicinity of the occurrence (A.F. 91598). DDH F20 was drilled (49 m length) in 1958 to test the longer anomaly (A.F. 91598). The area was covered by an airborne EM and magnetometer survey conducted in 1972 for Sherritt Gordon Mines Ltd. and in 1980, for Shell Canada Resources Ltd. (A.F. 91695, 92513). HLEM and magnetic surveys were performed in 1981 for Elken Exploration Ltd. in the vicinity of the occurrence and DDH 32-11-1 (total length 55 m) was drilled later that year (A.F. 92350). Prospecting, VLF-EM and magnetometer surveys were performed south of the occurrence for Noko Resources Inc. in 1985 (A.F. 92904)

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 35-1).

MINERALIZATION:

DDH 32-11-1 intersected a 75 cm thick siliceous paragneiss layer within graphitic greywacke (Burntwood River Metamorphic Suite) gneiss that contains disseminated pyrite mineralization, numerous up to 2 cm bands/layers of solid pyrite, and disseminated graphite mineralization. A silver grey mineral, possibly arsenopyrite, was also identified within the siliceous layer. DDH F20 encountered trace amounts of pyrite mineralization within graphitic greywacke (Burntwood River Metamorphic Suite) gneiss.

GEOCHEMICAL DATA:

Mineralized sections of core from DDH 32-11-1 were assayed for Au, Ag, Cu, Zn and Pb. A 47 cm sample from the siliceous layer contains 0.171 g/t Au.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation.

REFERENCES:

Assessment Files 91598, 91695, 92350, 92513, 92904
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 36

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6118873N/375066E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Jungle Lake, and traverse.

AREA: 4 km west of Walton Lake (Fig. 35-1).

AIRPHOTO: A26327-150

EXPLORATION SUMMARY:

The area has been staked intermittently since 1928. A loop-frame EM survey performed during the winter of 1957-58 by HBED identified anomalies in the vicinity of the occurrence (A.F. 91598). DDH F13, F14, F15 and F16 were drilled (276 m total length) by HBED in 1958 to test anomalies (A.F. 92598). The area was included in airborne EM and magnetometer surveys performed for Sherritt Gordon Mines Ltd. in 1972 and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 35-1). DDH F13 to F16 intersected graphitic quartz-biotite ± garnet gneiss, quartz-plagioclase-biotite-garnet gneiss, and lesser hornblende-plagioclase gneiss and quartz-hornblende biotite gneiss. DDH F16 intersected greenish quartz gneiss with sericitic and chloritic sections. Chlorite was also observed locally in DDH F13 and F14. 'Occasional' narrow carbonate stringers were noted in DDH F14 and F15. Veins of quartz and/or pegmatite were observed throughout the drill core.

MINERALIZATION:

Trace amounts of disseminated graphite and/or pyrite mineralization were observed throughout each hole. DDH F16 intersected two narrow bands/layers of graphite, 15 and 18 cm thick, within the greenish quartz gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. The graphitic sections may represent graphitic sulphide-bearing strata.

REFERENCES:

Assessment Files 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 37

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6119534N/374282E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Jungle Lake, and traverse.

AREA: 1.5 km east of Three Finger Lake (Fig. 35-1).

AIRPHOTO: A26327-149

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. A loop-frame EM survey performed by HBED during the winter of 1957-58 located a 350 m anomaly that extends across claims FIN 308-309 and FIN 320 (A.F. 91598). DDH F17, F18 and F19 were drilled (total length 324 m) in 1958 (A.F. 91598). Airborne EM and magnetometer surveys that covered the area were performed in 1972 by Sherritt Gordon Mines Ltd. and in 1979 by Shell Canada Resources Ltd. (A.F. 921695, 92513).

GEOLOGICAL SETTING:

According to Zwanzig *et al.* (1988) the area is underlain by Burntwood River Metamorphic Suite quartz-feldspar-garnet-biotite migmatite ± cordierite ± sillimanite (Fig. 35-1). Fine grained quartz-biotite ± garnet gneiss with interlayered quartz-hornblende gneiss layers was intersected in DDH F17. DDH F18 intersected graphitic quartz-biotite-feldspar ± garnet gneiss/schist. Quartz-plagioclase ± biotite ± hornblende gneiss was intersected in DDH F19. Pegmatite veins are ubiquitous throughout the core. Minor amounts of sericite were observed associated with the mineralization in DDH F17; chlorite and epidote veins occur locally in DDH 19.

MINERALIZATION:

An approximately 15 m thick zone of sulphide mineralization hosted by 'sheared' quartz-feldspar ± biotite ± sericite rock in DDH F17 comprises 3.5 m of moderate pyrite and disseminated sphalerite mineralization underlain by 11.5 m of moderate to near solid pyrrhotite with disseminated pyrite and sphalerite. DDH F19 intersected 23 m of fine grained quartz-biotite gneiss ± garnet with chloritic sections that contains disseminated pyrite. This rock is underlain by 3 m of quartz-plagioclase-hornblende-biotite gneiss 'mineralized' with pyrrhotite, disseminated pyrite and locally, stringers of sphalerite. Trace amounts of disseminated pyrite mineralization was observed within graphitic quartz-biotite-feldspar ± garnet gneiss/schist in DDH 18.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The local occurrence of sericite and chlorite in DDH F17 and F19, respectively, is suggestive of alteration that is commonly associated with massive sulphide type deposits.

REFERENCES:

Assessment Files 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

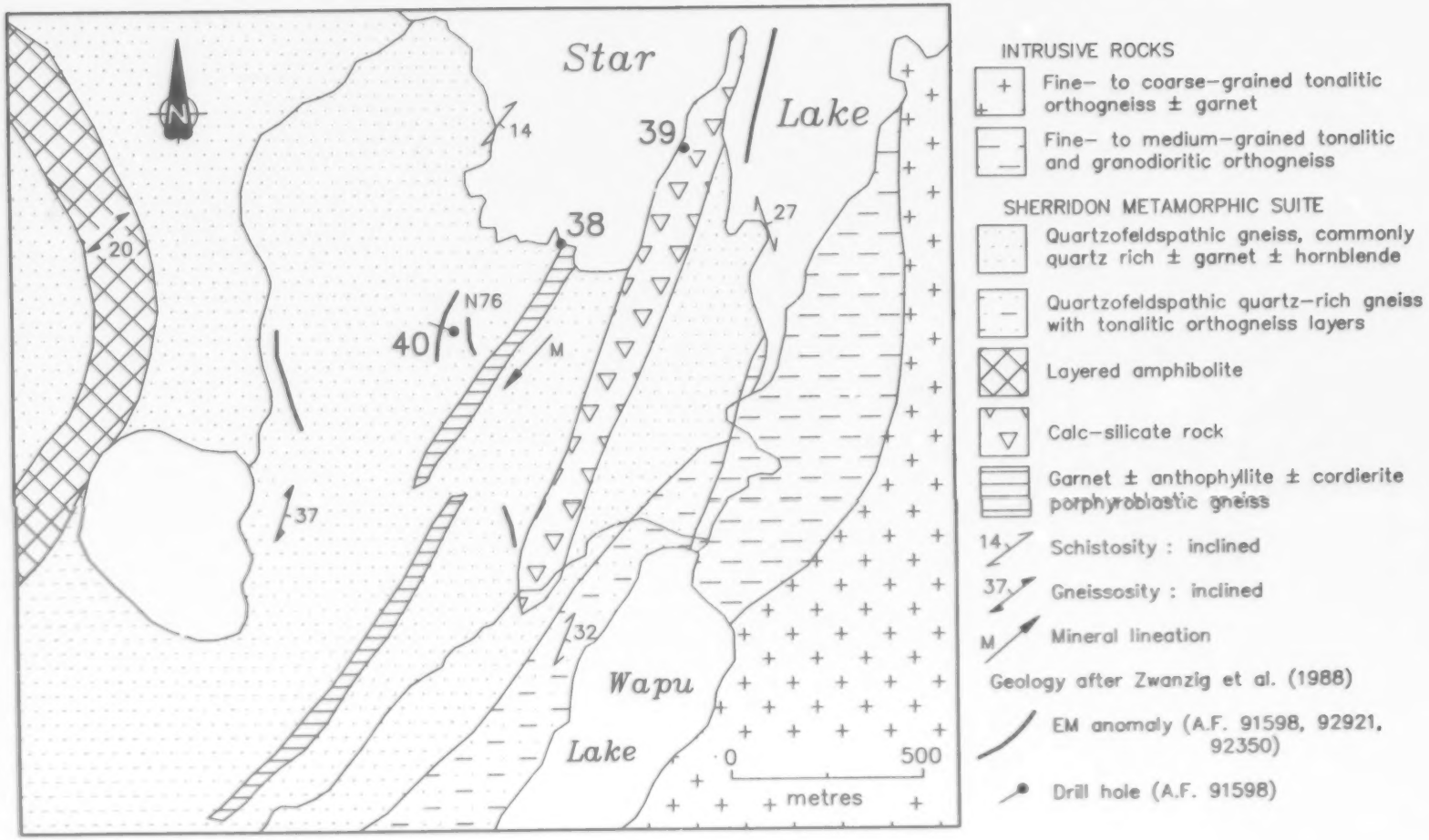


Figure 38-1: General geology, geophysical anomaly, trench location and drill hole location at occurrences 33 and 34.

LOCATION: 38

NAME:
UTM: 6112001N/378254E
ACCESS: Bush aircraft to Star Lake.

AREA: Southwest shore of Star Lake.
AIRPHOTO: A26327-46

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. Airborne EM and magnetometer surveys were performed in the area by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). Gunter and Yamada (1985, 1986) and Leroux (1989) have examined the occurrence (Figure 38-2). The locality is currently (1990) held by A.L. Parres Ltd. as part of the claim ROS 2.

GEOLOGICAL SETTING:

The area (Fig. 38-1) is underlain by a layered, coarse grained anthophyllite-bearing sequence (Robertson, 1953; Gunter and Yamada, 1985, 1986) conformably flanked by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988). Three layers within the anthophyllite sequence were distinguished, these are: 1) quartz-garnet-anthophyllite-biotite; 2) garnet-anthophyllite ± cordierite; and 3) anthophyllite-cordierite (Fig. 38-2). Elevated concentrations of sillimanite occur at the layer 1-layer 2 contact, *cf.* Location 119).

MINERALIZATION:

Trace amounts of pyrite occur in a 20 cm thick rusty weathered layer/zone. Anomalous Te and Au concentrations within a portion of the layer may indicate the presence of telluride minerals.

GEOCHEMICAL DATA:

An 18 cm long portion of saw cut SC 4B, from the anthophyllite-cordierite layer (Fig. 38-2), contains 5660 ppb Au, 3220 ppm Te and 4400 ppm Zn (Leroux, 1989).

CLASSIFICATION:

Replacement type deposit. The unusual mineralogy of the conformable anthophyllite sequence/layers may reflect: 1) the original chemistry of a chemical sedimentary precipitate, with or without mixing during sedimentation; 2) alteration by hydrothermal fluid flow along a structure such as a fault or shear zone and possible transposition; or 3) transposition of an Fe-Mg alteration zone similar to that commonly associated with massive sulphide type deposits (anthophyllite-bearing rocks exhibit a spatial association with the Sherridon East Cu-Zn massive sulphide deposit in NTS 63N/3). Froese and Goetz (1980) and Leroux (1989) suggest that the anthophyllite layer(s) may have been generated as a result of *in situ* chloritization of basaltic rocks on the sea floor.

REFERENCES:

Assessment Files 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Gunter, W. R. and Yamada, P. H.
1985: Evaluation of industrial mineral occurrences in the Snow Lake area; In Manitoba Energy and Mines, Geological Services, Mines Branch, Report of Field Activities, 1985, p. 100-108.

Gunter, W. R. and Yamada, P. H.
1986: Evaluation of industrial mineral occurrences in the Flin Flon-Snow lake area; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1986, p. 86-91.

Leroux, M.V.
1989: Mineralogical and geochemical investigation of the cordierite-anthophyllite rocks of Star Lake, near Sherridon, Manitoba; University of Manitoba, M.Sc. Thesis (unpublished), 177p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

Froese, E. and Goetz, P.A.
1980: Geology of the Sherridon group in the vicinity of Sherridon, Manitoba; Geological Survey of Canada, Paper 80-21, 20p.

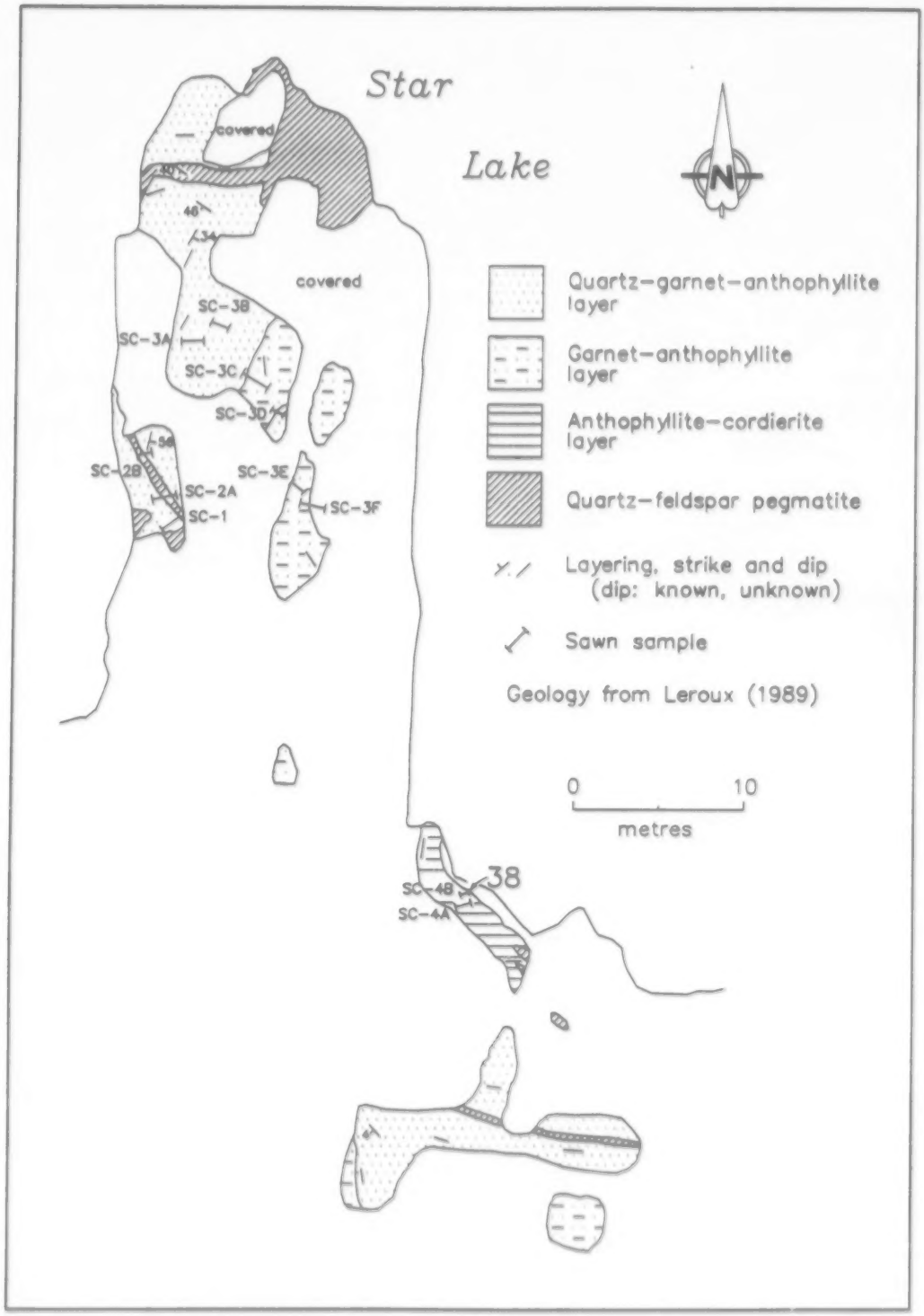


Figure 38-2: Detailed geology and outcrop map in the vicinity of occurrence 38.

LOCATION: 39

NAME: Star Lake sulphide

UTM: 6112243N/378579E

ACCESS: Bush aircraft to Star Lake.

AREA: West shore of peninsula on south shore of Star Lake (Fig. 38-1).

AIRPHOTO: A26327-46

EXPLORATION SUMMARY:

This occurrence, known as Star Lake sulphide (Robertson, 1953), has been staked intermittently since 1956. Robertson (1948, 1953) noted three pits on the peninsula. The area was included in airborne EM and magnetometer surveys performed for Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). The occurrence was examined by Gale (1981). The locality was covered in 1990 by claim ROS 2 held by A.L. Parres Ltd.

GEOLOGICAL SETTING:

The area is underlain by calc-silicate gneiss (Zwanzig *et al.*, 1988; Fig. 38-1). Robertson (1953) describes the host lithology as hornblende-rich rock interbedded with coarse grained, friable beds of diopside and clinozoisite.

MINERALIZATION:

Minor amounts of disseminated pyrite are present at this locality (Robertson, 1953; Zwanzig *et al.*, 1988).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 40

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6111820N/377972E

ACCESS: Bush aircraft to Star Lake, and traverse.

AREA: 250 metres southwest of Star Lake (Fig. 38-1).

AIRPHOTO: A26327-46

EXPLORATION SUMMARY:

The occurrence was staked for HBED in 1957 (NOK 213-4, 180). A loop-frame survey completed during the winter of 1957-58 defined a 120 m long anomaly (A.F. 91598). The anomaly was drill tested in 1959 (A.F. 91598). An airborne EM survey performed for Sherritt Gordon Mines Ltd. delineated two weak anomalies (A.F. 91695). An airborne EM and magnetometer survey performed in 1979 for Elken Exploration Ltd., included the occurrence (A.F. 92921). In 1980 Elken performed HLEM and magnetometer surveys over the area and identified several 100 to 300 m long coincident magnetometer and HLEM anomalies (A.F. 92921). The occurrence is held (1990) as part of the claim ROS-2, by A.L. Parres Ltd.

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 38-1). DDH N76 intersected quartz-plagioclase-hornblende ± garnet ± biotite gneiss.

MINERALIZATION:

DDH N76 intersected approximately 8 m of disseminated pyrrhotite mineralization hosted by quartz-plagioclase-hornblende ± garnet ± biotite gneiss. This zone contains a 0.8 m thick near solid pyrrhotite layer.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 41

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6109766N/377440E

ACCESS: Bush aircraft to Star or Wapu Lakes, and traverse.

AREA: 250 metres south of Wapu Lake.

AIRPHOTO: A26327-44

EXPLORATION SUMMARY:

The earliest recorded staking of this area is as part of the ELKEN Group (ELKEN 17-19) in February 1928 by Phillip Sherlett and staff of Sherritt Gordon Mines Ltd (Wright, 1929).

The area around the occurrence was staked as THOM 1-5 *circa* 1951. Employees of HBED mapped the geology in 1957 (A.F. 91459). A loop-frame survey completed in 1958 did not locate any anomalies (A.F. 91598). A 1972 airborne EM survey performed for Sherritt Gordon Mines Ltd. defined weak conductors in the area (A.F. 91695). An airborne EM and magnetometer survey performed by Elken Exploration Ltd. in 1979 included the occurrence (A.F. 92921). P. Sewap staked PER 9 (CB 11371) in 1981 for Elken Exploration Ltd. who did magnetometer and HLEM surveys in 1980 and 1981 (A.F. 92549, 92921) and delineated a 800 m long EM anomaly. A hole (52 m) was drilled in 1982 (A.F. 92547). G. Lawson staked ROSS 4 over the occurrence in 1986 for A.L. Parres Ltd. The current (1989) holder is Noko Resources Inc.

GEOLOGICAL SETTING:

The occurrence is situated at or near the contact between Sherridon Metamorphic Suite quartzofeldspathic gneiss and tonalitic to granitic intrusive rocks (Zwanzig *et al.*, 1988; Fig. 41-1). DDH 32-9-1 intersected interlayered massive to banded siliceous quartzofeldspathic gneiss ± calc-silicate minerals, hornblende- and/or biotite-bearing gneiss and graphitic, quartzofeldspathic biotite-bearing (greywacke?) gneiss.

MINERALIZATION:

Minor disseminated pyrite and/or pyrrhotite mineralization was observed throughout the DDH core. A 3 cm thick arsenopyrite vein as well as stringers and 'splashes' of pyrite were observed within a 1.7 m thick 'well mineralized' quartzofeldspathic gneiss unit.

GEOCHEMICAL DATA:

Core sample(s) from the 1.7 m thick mineralized quartzofeldspathic gneiss were assayed (A.F. 92547) and contained 0.17 g/t gold and 4.8 g/t Ag. Base metal values were not anomalous.

CLASSIFICATION:

Vein type deposit; multiple veins or lenses. Quartzofeldspathic rock and a dark green aphanitic material form the matrix to pyrite stingers and an arsenopyrite vein within the 'well mineralized' quartzofeldspathic gneiss.

REFERENCES:

Assessment Files 91459, 91598, 91695, 92547, 92921
Manitoba Energy and Mines, Minerals Division.

Wright, J.F.
1929: Kississing Lake area, Manitoba; In Summary Report, 1928, Part B, Geological Survey of Canada, p. 73B-104B.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

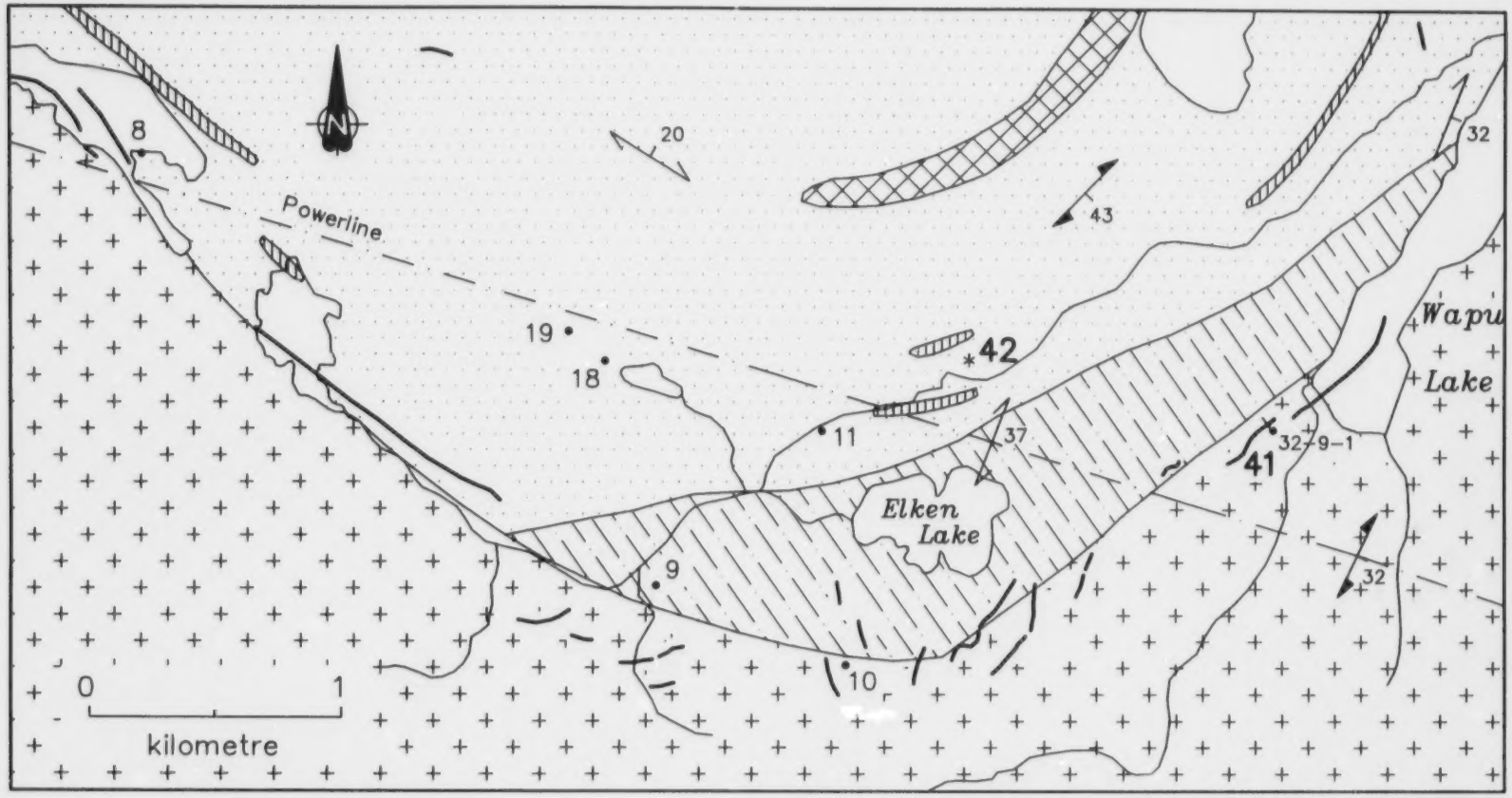


Figure 41-1: General geology, geophysical anomalies, and location of drill hole and trench at occurrences 41 and 42.

LOCATION: 42

NAME:

UTM: 6110090N/376228E

ACCESS: Bush aircraft to Star Lake, and traverse following ridge towards powerline.

AREA: 500 metres north of Elken Lake (Fig. 41-1).

AIRPHOTO: A26369-71

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. HBED performed a loop-frame EM survey during the winter of 1957-58 that included the area around the occurrence (A.F. 91598). Airborne EM and magnetometer surveys were performed in the area by Sherritt Gordon Mines Ltd. in 1972 and by Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). Gunter and Yamada (1985) located a trench at the occurrence site. Leroux (1989) visited the vicinity of the occurrence. The area was held by Noko Resources Inc. as part of the claim ANGIE 4 in 1990.

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite gneiss (Zwanzig *et al.*, 1988). The occurrence (Fig. 41-1) is hosted by cordierite-anthophyllite rocks that are conformably flanked by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Robertson, 1953; Gunter and Yamada, 1985).

MINERALIZATION:

Yellow-green (copper?) stains within anthophyllite rock were observed in the trench (Gunter and Yamada, 1985).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Replacement type deposit. The unusual mineralogy of the conformable anthophyllite sequence/layers may reflect: 1) the original chemistry of a chemical sedimentary precipitate, with or without mixing during sedimentation; 2) alteration by hydrothermal fluid flow along a structure such as a fault or shear zone and possible transposition; or 3) transposition of an Fe-Mg alteration zone like that commonly associated with massive sulphide type deposits (anthophyllite-bearing rocks exhibit a spatial association with the Sherridon East Cu-Zn massive sulphide deposit in NTS 63N/3).

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Gunter, W. R. and Yamada, P. H.
1985: Evaluation of industrial mineral occurrences in the Snow Lake area; In Manitoba Energy and Mines, Geological Services, Mines Branch, Report of Field Activities, 1985, p. 100-108.

Leroux, M.V.
1989: Mineralogical and geochemical investigation of the cordierite-anthophyllite rocks of Star Lake, near Sherridon, Manitoba; University of Manitoba, M.Sc. Thesis (unpublished), 177p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

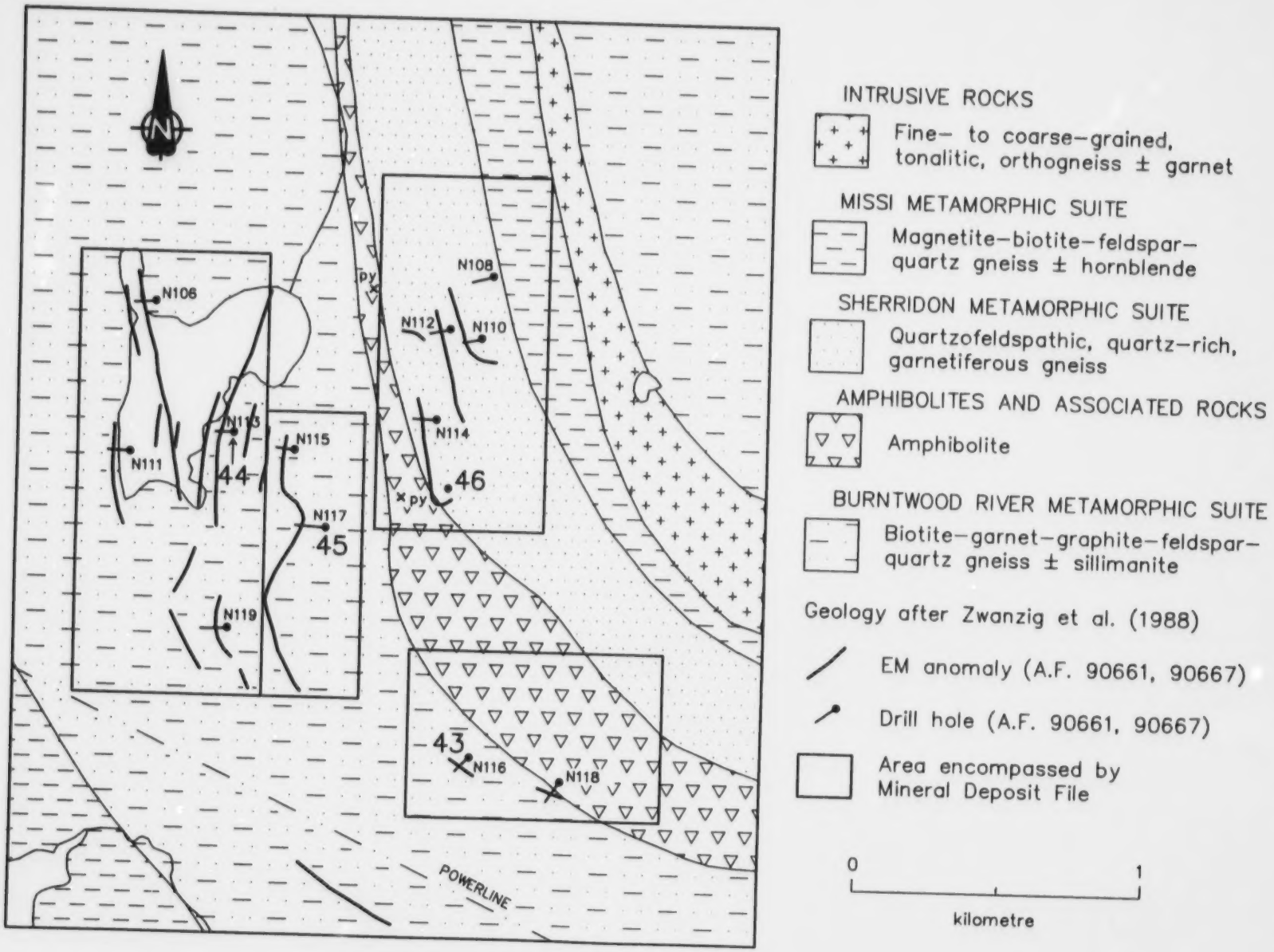


Figure 43-1: General geology, geophysical anomalies and drill hole locations at occurrences 43, 44, 45 and 46.

LOCATION: 43

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6106983N/383846E

ACCESS: Bush aircraft to Gohl Lake, and traverse.

AREA: 2 km east of Gohl Lake.

AIRPHOTO: A26326-127

EXPLORATION SUMMARY:

After staking NOK 539 and 540 in 1957, HBED completed a loop-frame EM survey during the winter of 1957-58 (A.F. 90661). Two moderate strength, single line EM anomalies were defined and each was drill tested (DDH N116 and N118; 92 m total) in 1959 (A.F. 90667). An airborne EM and magnetometer survey by Sherritt Gordon Mines Ltd., in 1972 identified broad anomalies in the area (A.F. 91695). W. Heidman staked RED 7 (CB 9917) for Shell Canada Resources Ltd. over the occurrence area in July, 1979 (cancelled 1982).

GEOLOGICAL SETTING:

The occurrence is situated at or near the contact between Burntwood River Metamorphic Suite rocks (greywacke gneiss) and a suite of calcareous amphibolitic rocks (Zwanzig *et al.*, 1988; Fig. 43-1) or Sherridon Group hornblende-plagioclase gneiss and limestone (Robertson, 1953). Both DDH intersected interlayered quartzite gneiss ± biotite ± garnet ± carbonate, quartz-plagioclase-biotite-garnet (greywacke) gneiss and 'altered' gneiss with biotite, chlorite, talc ± epidote/carbonate and graphite.

MINERALIZATION:

The altered gneiss contains graphite and disseminated pyrite (DDH N118) or graphite and pyrite stringers (DDH N116). Disseminated pyrite and graphite were observed locally in the greywacke gneiss. Disseminated pyrite and pyrrhotite mineralization also occur within a quartz-carbonate gneiss (DDH N118).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified (*cf.* Locations 44 to 49).

REFERENCES:

Assessment File 90661, 90667, 91695
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 44

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6108244N/382723E

ACCESS: Bush aircraft to Gohl Lake, and traverse.

AREA: 1 km northeast of Gohl Lake (Fig. 43-1).

AIRPHOTO: A26326-127

EXPLORATION SUMMARY:

The area around the occurrence has been staked intermittently since 1928. HBED performed a loop-frame EM survey during the winter of 1957-58 that delineated anomalies on claims NOK 472, 473, 498, 499, 524, 525 and NOK 573 (A.F. 90661). DDH N106, N111, N113 and N119) were drilled (total length 480 m) in 1959 (A.F. 90661). The vicinity of the occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd., in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). Portions of the area were included in claim TAM 4, staked in 1986 by I. Morrison for Noko Resources Inc.

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 43-1). The drill holes intersected a sequence of quartz-plagioclase-biotite ± garnet gneiss and quartz-biotite gneiss. In addition, quartz-carbonate gneiss, granitized gneiss ± carbonate ± chlorite and garnetiferous talc-biotite-quartz gneiss were intersected in DDH N106, N111 and N113 respectively. Chlorite, carbonate and talc ± chlorite (blebs and stringers) are locally important constituents of the rock sequence.

MINERALIZATION:

Trace to minor amounts of disseminated pyrite and/or graphite were observed locally within the drill core.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified (*cf.* Locations 43, 45 to 49).

REFERENCES:

Assessment Files 90661, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 45

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6107876N/383056E

ACCESS: Bush aircraft to Gohl Lake, and traverse.

AREA: 1250 metres northeast of Gohl Lake (Fig. 43-1).

AIRPHOTO: A2€326-127

EXPLORATION SUMMARY:

The area around the occurrence has been staked intermittently since 1957. HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 90661). DDH N115 and N117 were drilled (total length 194 m) in 1959 to test an anomaly on claims NOK 499, 500, 523 and 524 (A.F. 90661). The area was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and by Elken Exploration Ltd. in 1979 (A.F. 91695, 92921).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 43-1). The DDH intersected a sequence of quartz-plagioclase-biotite ± garnet ± chlorite gneiss, quartz-biotite-graphite schist/gneiss and biotite-chlorite-graphite schist. A quartz-carbonate gneiss layer was observed in DDH N115. Occurrences of accessory chlorite, carbonate and talc are infrequent.

MINERALIZATION:

A 35 cm thick near solid pyrrhotite layer with trace amounts of chalcopyrite was intersected in DDH N117. Trace amounts of chalcopyrite and sphalerite hosted by quartz-biotite-graphite schist were also intersected by in DDH N117. Trace to minor amounts of pyrite and/or graphite were observed locally throughout the core.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation (*cf.* Locations 43, 44, 46 to 49).

REFERENCES:

Assessment Files 90661, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 46

NAME: Nokomis River sulphide
UTM: 6108016N/383449E
ACCESS: Bush aircraft to Gohl Lake, and traverse.

AREA: 2 km northeast of Gohl Lake (Fig. 43-1).
AIRPHOTO: A26326-128

EXPLORATION SUMMARY:

This occurrence, known as Nokomis River sulphide (Robertson, 1948, 1953), has been staked intermittently since 1928. Robertson (1948, 1953) examined outcrops and four pits in the area in 1947. HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 90661). DDH N108, N110, N112 and N114 were drilled (total length 200 m) in 1959 on claims NOK 470 and 501 (A.F. 90661). Sherritt Gordon Mines Ltd., included the occurrence in an airborne EM and magnetometer survey performed in 1972 (A.F. 91695). Ostry (1986) examined outcrops in the area.

GEOLOGICAL SETTING:

The occurrence is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss flanked to the west by amphibolite ± garnet ± diopside ± calcite and hornblende-plagioclase gneiss, and to the east by Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± epidote ± muscovite paragneiss (Zwanzig *et al.*, 1988; Fig. 43-1). Robertson (1953) recognized silicified meta-limestone exposed in trenches at the Nokomis River Sulphide Deposits occurrence. Quartz-feldspar-biotite-garnet ± graphite (greywacke) gneiss flanked to the east by interlayered fine grained amphibolite and medium grained, rusty weathered, lime-rich (at least 50% calcite) rock were documented in the vicinity (Ostry (1986). The diamond drilling intersected a layered gneiss succession of diverse lithologies that include quartz-feldspar-biotite ± garnet ± graphite (greywacke) gneiss, carbonate gneiss and gneissic crystalline limestone ± biotite and chlorite, quartz-carbonate ± biotite gneiss, granitized gneiss, impure banded quartzite and talc-chlorite-biotite gneiss. Carbonate, garnet and chlorite occur locally throughout the core.

MINERALIZATION:

Robertson (1953) documented 'veinlets and disseminated flecks of pyrite' and trace amounts of chalcopyrite within the meta-limestone. Trace amounts of pyrite, pyrrhotite and chalcopyrite hosted by quartz-carbonate gneiss were intersected by DDH N114. Crystalline limestone that contains trace amounts of disseminated pyrite was intersected in DDH N110. DDH 110 also intersected 80 cm and 3.3 m 'well mineralized' with pyrite ± graphite within very fine grained siliceous plagioclase-biotite ± carbonate ± garnet (greywacke?) gneiss. Trace to minor amounts of pyrite and/or pyrrhotite and/or graphite occur locally throughout the core.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; other chemical sediments. Moderate amounts of iron sulphide occur within carbonate and carbonate-rich layers. Iron sulphide and graphite form graphitic sulphide facies iron formations within greywacke gneiss, especially near the contact with Missi Metamorphic Suite paragneiss and/or Sherridon Metamorphic Suite gneiss (*cf.* Locations 35,69 and 45).

REFERENCES:

Assessment Files 90661, 91695
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1986: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1986, p. 100-106.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 47

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6105972N/387030E

ACCESS: Bush aircraft to Moody Lake, and traverse.

AREA: 2.5 km west of Moody Lake.

AIRPHOTO: A26325-132

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1947. HBED performed a loop-frame EM survey during the winter of 1957-58 that delineated anomalies on claims NOK 582 and 583 (A.F. 90661). DDH N121 was drilled (length 52 m) in 1959 (A.F. 90661). Shell Canada Resources Ltd. included the area of the occurrence in an airborne EM and magnetometer survey performed in 1980 (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss near its contact with Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 47-1). DDH N121 intersected quartz-biotite-chlorite gneiss, quartz-biotite-graphite schist, gneissic quartzite and quartz-carbonate gneiss. Carbonate and chlorite are locally important constituents of the rock sequence.

MINERALIZATION:

Minor amounts of disseminated pyrite and/or graphite and/or pyrite stringers were observed locally within the drill core.

GEOCHEMICAL DATA:

None.

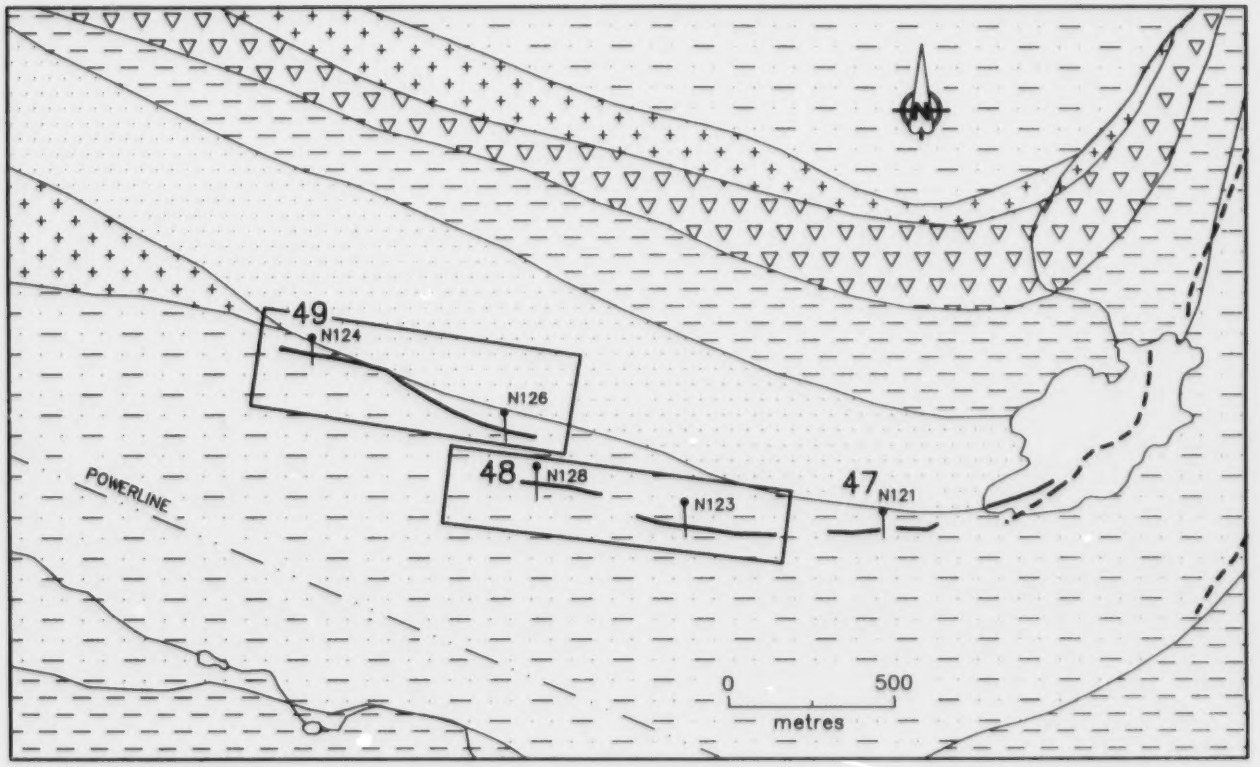
CLASSIFICATION:

Disseminated mineralization - not classified (*cf.* Locations 43, 44 to 46, 48 and 49).

REFERENCES:

Assessment Files 90661, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.



INTRUSIVE ROCKS
Fine– to coarse–grained, tonalitic orthogneiss ± garnet

MISSI METAMORPHIC SUITE
Magnetite–biotite–feldspar–quartz gneiss ± hornblende

SHERRIDON METAMORPHIC SUITE
Quartzofeldspathic quartz–rich gneiss ± garnet

AMPHIBOLITE AND ASSOCIATED ROCKS
Amphibolite ± diopside ± calcite

BURNTWOOD RIVER METAMORPHIC SUITE
Biotite–graphite–feldspar–quartz gneiss ± garnet ± sillimanite

Geology after Zwanzig et al. (1988)

EM anomaly (A.F. 90661, 90667)

Airborne EM anomaly (A.F. 92513)

Drill hole (A.F. 90661)

Area encompassed by Mineral Deposit File

Figure 47-1: General geology, geophysical anomalies and drill hole locations at occurrences 47, 48 and 49.

LOCATION: 48

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6106111N/385984E

ACCESS: Bush aircraft to Moody Lake, and traverse.

AREA: 3 km west of Moody Lake (Fig. 47-1).

AIRPHOTO: A26326-46

EXPLORATION SUMMARY:

The area around the occurrence has been staked intermittently since 1947. HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 90661). DDH N123 and N128 were drilled (total length 104 m) in 1959 on claims NOK 581 and 582 (A.F. 90661). The area was included in an airborne EM and magnetometer survey performed by Shell Canada Resources Ltd. in 1980 (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss near its contact with Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 47-1). The drill holes intersected gneissic quartzite, quartz-biotite ± garnet ± chlorite gneiss, crystalline limestone , hornblende-plagioclase gneiss and quartz-plagioclase-biotite ± garnet gneiss.

MINERALIZATION:

Trace to minor amounts of pyrite and/or pyrrhotite and/or graphite were observed locally throughout the core. Trace amounts of chalcopyrite occur within quartz-carbonate gneiss in DDH N123. Trace to minor amounts of disseminated arsenopyrite mineralization occur within quartz-biotite gneiss over core lengths of 90 cm (DDH N123) and 1.8 m (DDH N128).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified (*cf.* Locations 43, 44 to 47 and 49).

REFERENCES:

Assessment Files 90661, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 49

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6106551N/385310E

ACCESS: Bush aircraft to Gohl Lake or Moody Lake, and traverse.

AREA: 4 km west of Moody Lake (Fig. 47-1).

AIRPHOTO: A26326-46

EXPLORATION SUMMARY:

The area around the occurrence has been staked intermittently since 1947. HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 90661, 90667). DDH N124 and N126 were drilled (total length 88 m) in 1959 on claims NOK 558 and 579 to test a geophysical anomaly (A.F. 90661). Shell Canada Resources Ltd., included the area in an airborne EM and magnetometer survey performed in 1980 (A.F. 91513).

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss near its contact with Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 47-1). The DDH intersected gneissic quartzite ± carbonate, fractured quartz-biotite ± garnet gneiss, quartz-biotite ± chlorite gneiss and quartz-plagioclase-biotite-garnet gneiss.

MINERALIZATION:

Mineralization within the fractured quartz-biotite gneiss encountered in DDH N124 includes disseminated graphite and pyrite as well as a 30 cm near solid graphite intersection. Minor amounts of disseminated pyrite and/or graphite were observed locally within the drill core. In DDH N124 pyrite stringers and trace amounts of chalcopyrite and sphalerite occur in quartz-biotite-chlorite gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Although only graphite may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980). Disseminated sulphide ± graphite mineralization that includes minor amounts of pyrite, chalcopyrite and sphalerite was intersected in DDH 124 (*cf.* Locations 43 to 48).

REFERENCES:

Assessment Files 90661, 90667, 92513
Manitoba Energy and Mines, Minerals Division.

Gale, G.H., Baldwin, D.A. and Koo J.
1980: A geological evaluation of Precambrian massive sulphide deposit potential in Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-1, 137p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 50

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6106176N/383945E

ACCESS: Bush aircraft to Gohl Lake, and traverse.

AREA: 1 km east of Gohl Lake, and south of the powerline.

AIRPHOTO: A26326-126

EXPLORATION SUMMARY:

HBED staked NOK 562, 563, 574 and 575Fr over the area in 1957. A loop-frame EM survey performed during the winter of 1957-58 defined a discontinuous 1300 m anomaly (A.F. 90661, 90667). DDH N120 and N122 were drilled in 1959 (A.F. 90661).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 50-1). The drill holes intersected quartz-plagioclase-biotite ± garnet gneiss, quartz-biotite gneiss and biotite-graphite gneiss. Talc, chlorite and carbonate were noted locally in the drill core.

MINERALIZATION:

Disseminated pyrite mineralization within biotite-graphite gneiss and quartz-biotite gneiss was intersected in the drill holes.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90661, 90667
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

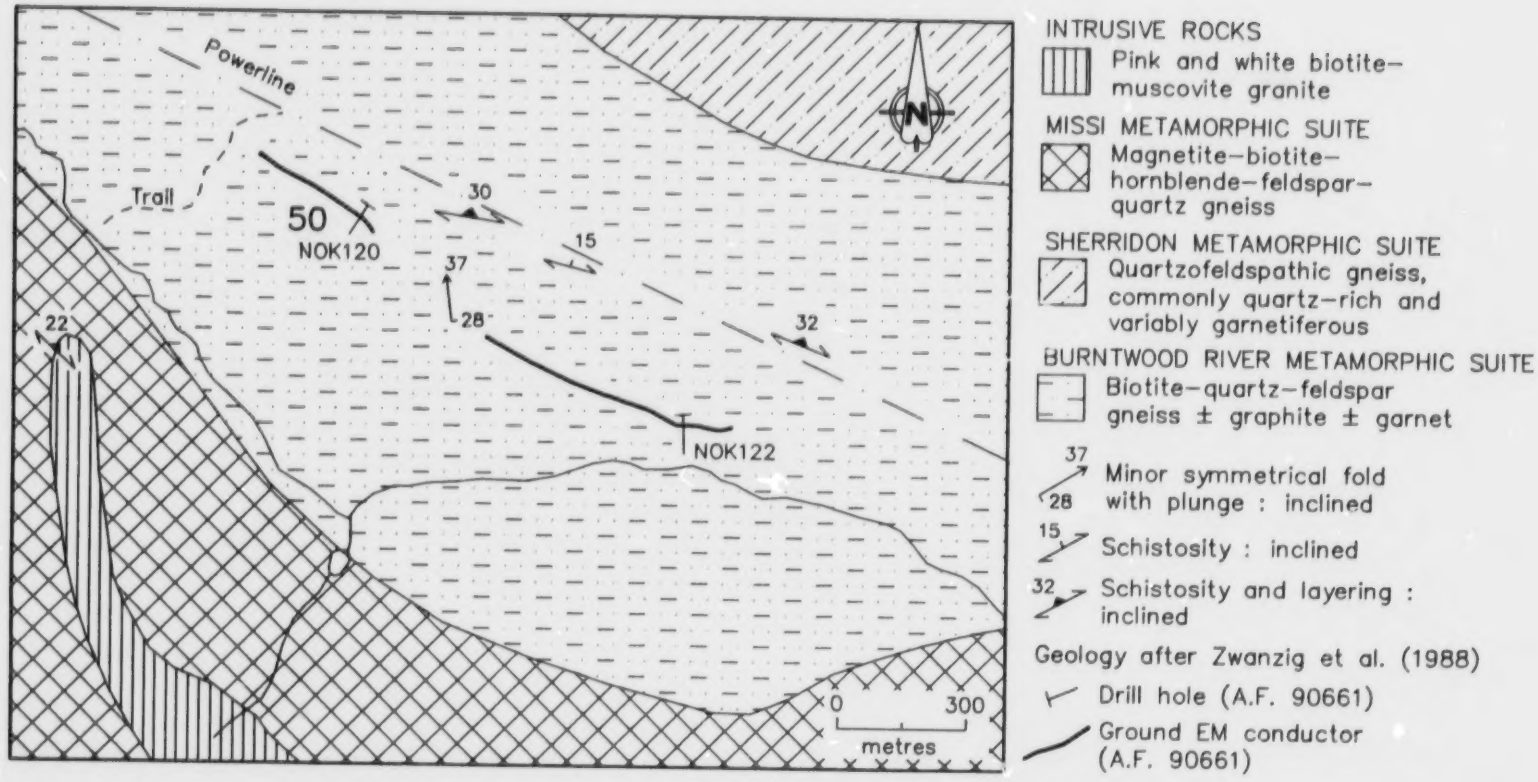


Figure 50-1: General geology, geophysical anomalies and drill hole locations at occurrence 50.

LOCATION: 51

NAME: (A.F.- Mineralization intersected by diamond drilling)

AREA: 2 km south of Gohl Lake.

UTM: 6102483N/383462E

AIRPHOTO: A26326-123

ACCESS: Bush aircraft to Gohl Lake, and traverse.

EXPLORATION SUMMARY:

The earliest recorded staking of the area was as JEAN 4 in the late 1940's. E. Morrissette staked CB 5684 for Dome Exploration (Canada) Ltd., in 1973 (cancelled 1977). In 1982 J.J. Studer staked NUFFA 6 for Granges Exploration AB. They conducted an HLEM survey in 1983, a vector pulse EM survey in 1984 and completed DDH Wood 1 (188 m) in 1985 (A.F. 92817, 92820). The claim lapsed in July, 1988.

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 51-1). The drill hole intersected quartz-muscovite-feldspar-biotite gneiss, amphibole-chlorite-plagioclase ± carbonate schist, granodiorite and schistose, garnetiferous and graphitic wacke.

MINERALIZATION:

Approximately 2.3 m of scattered 0.5 to 1.5 cm pyrrhotite stringers with trace amounts of chalcopyrite, and 40 cm of 50% pyrite + pyrrhotite + graphite were intersected in the garnetiferous and graphitic wacke unit. In addition, a quartz vein mineralized with trace amounts of pyrite was intersected over 30 cm, trace amounts of arsenopyrite and pyrrhotite were intersected over 10 cm and trace amounts of disseminated chalcopyrite were intersected over 1.5 m within the wacke. Bands/layers/veins composed of calcite, quartz, garnet, chlorite, up to 30% pyrrhotite and trace amounts of chalcopyrite were intersected over lengths of 10 and 20 cm in chloritic amphibolite schist. Several 0.5 to 10 cm pyrrhotite stringers were also observed hosted by the amphibolite schist.

GEOCHEMICAL DATA:

From approximately 100 m to hole end the drill core was assayed for Au and Ag and selectively for Cu and Zn. Outside of mineralized sections all core samples were 80 cm long. Au concentrations range from trace to 0.66 g/t and Ag concentrations range from trace to 1.77 g/t. Cu and Zn values were not anomalous.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Numerous veins/stringers of solid pyrrhotite ± chalcopyrite, or pyrrhotite with calcite, quartz, garnet and chlorite occur in the core. Trace amounts of disseminated arsenopyrite and chalcopyrite and a pyrite-bearing quartz vein were observed within the wacke unit.

REFERENCES:

Assessment Files 92817, 92820
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

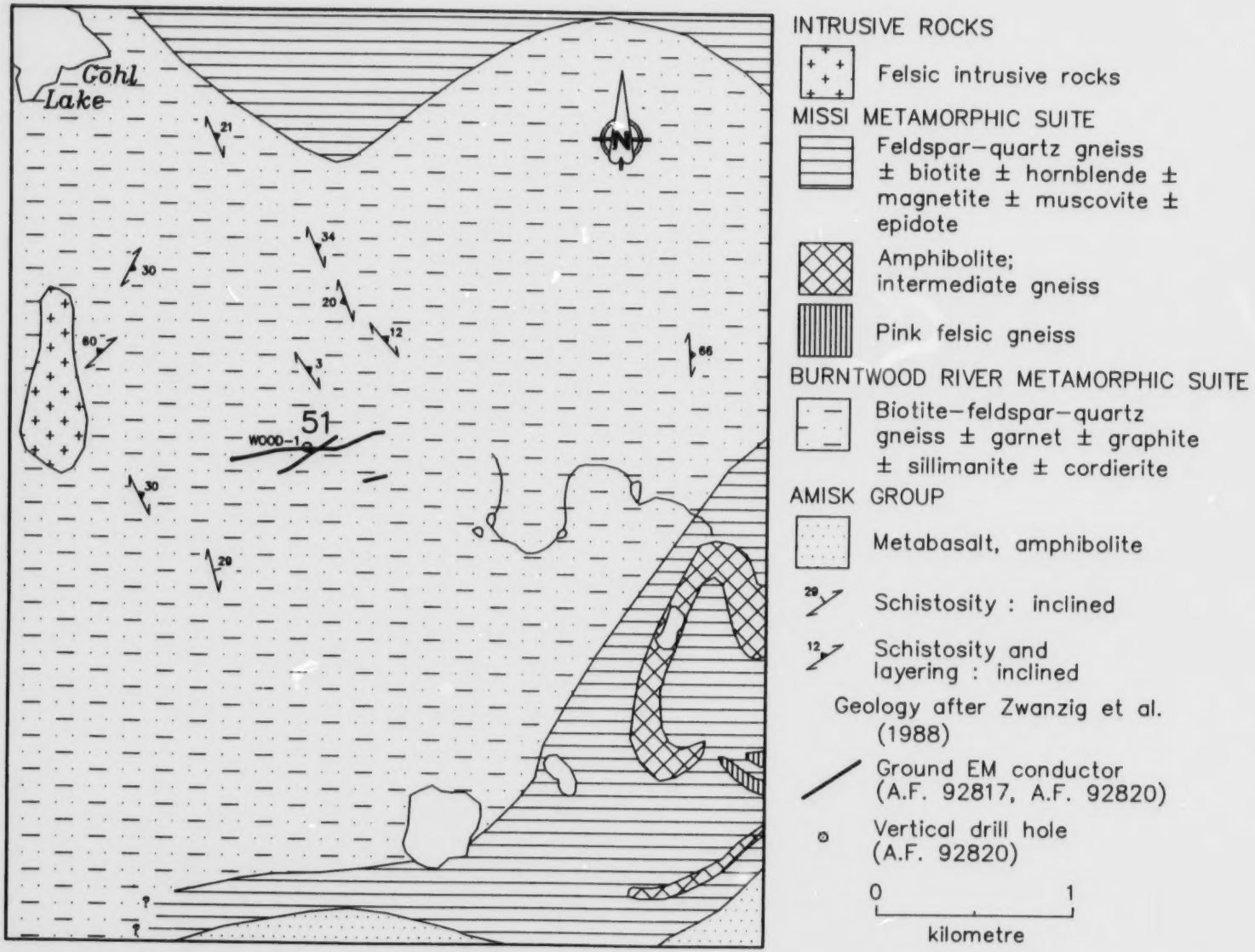


Figure 51-1: General geology, geophysical anomalies and drill hole location at occurrence 51.

LOCATION: 52

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6104260N/382690E

ACCESS: Bush aircraft to Gohl Lake, and traverse.

AREA: 250 metres southeast of Gohl Lake.

AIRPHOTO: A26326-124

EXPLORATION SUMMARY:

The area around the occurrence was staked for HBED as part of the NOK Group (NOK 568, 601-603, 639-642, 649) in 1957. A HLEM survey in 1957-58 identified several weak to moderate, one and two line conductors, as well as two weak, subparallel, 450 m long conductors (A.F. 90661). A short conductor was tested in 1959 with DDH N150 (52 m). E. Morrissette staked CB 5683 for Dome Exploration (Canada) Ltd. in 1973 (cancelled 1977). I. Bjornson staked SHE 12451 for HBED in 1981 (cancelled 1985).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 52-1). The drill hole intersected quartz-biotite ± garnet gneiss and biotite-chlorite gneiss with quartz, talc and carbonate.

MINERALIZATION:

Pyrite stringers occur locally within the biotite-chlorite gneiss. Grains of arsenopyrite were observed over approximately 50 cm of core within the quartz-biotite gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Vein type deposit; multiple veins or lenses. Disseminated arsenopyrite mineralization was also observed in the drill core.

REFERENCES:

Assessment File 90661
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

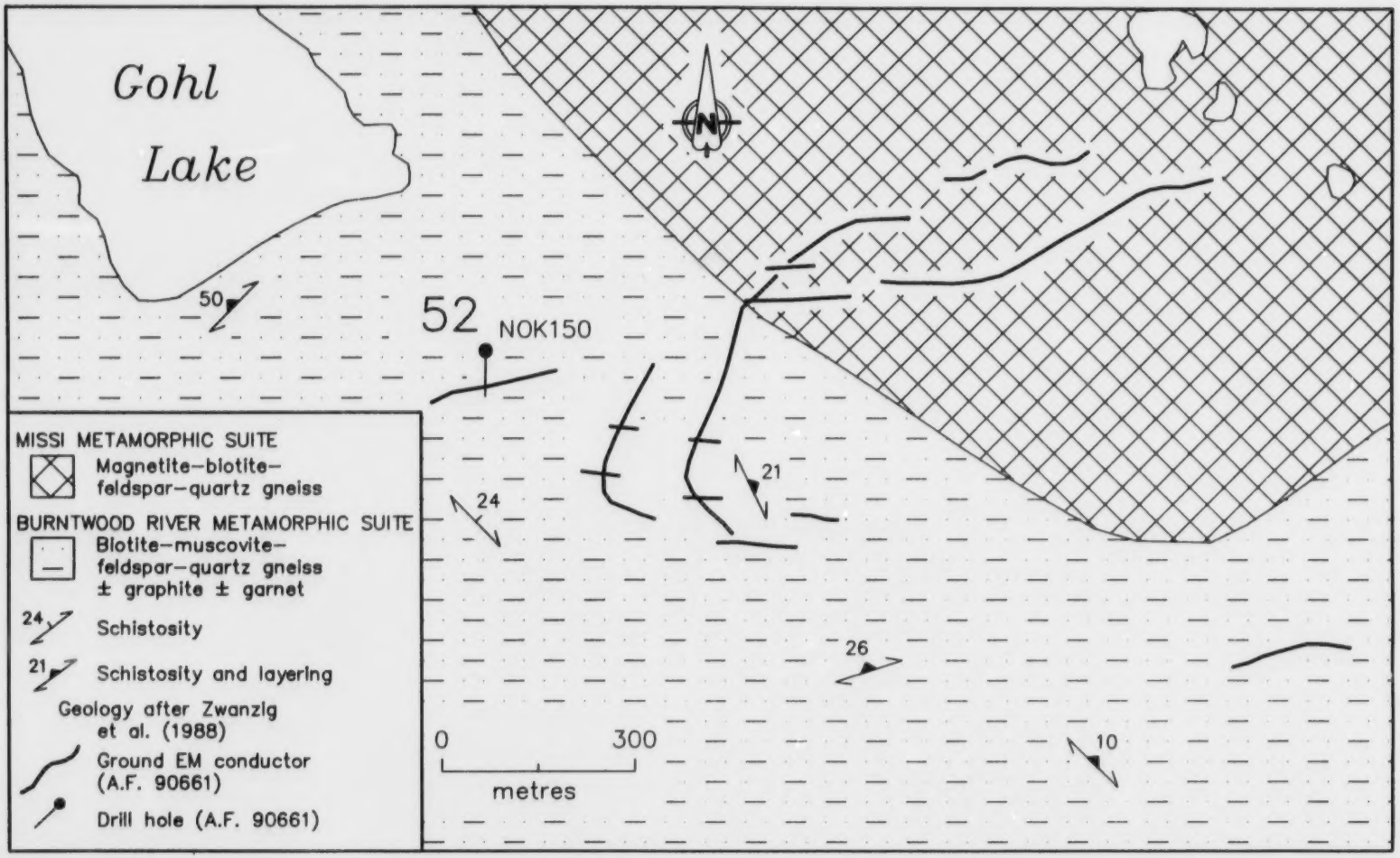


Figure 52-1: General geology, geophysical anomalies and drill hole location at occurrence 52.

LOCATION: 53

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6104372N/384451E

ACCESS: Bush aircraft to Gohl Lake, and traverse.

AREA: 2 km east of Gohl Lake.

AIRPHOTO: A26326-47

EXPLORATION SUMMARY:

Portions of the area were staked in the late 1940's as the CAP and DITO groups. HBED staked the west portion of the area in 1957 and conducted a loop-frame EM survey (A.F. 90661). Two short anomalies were delineated. An HLEM survey in 1983 defined two short anomalies and a discontinuous 1600 m long anomaly (A.F. 92838). DDH SHE 56 (78 m) was drilled in 1984 to test the anomaly (A.F. 92865). A portion of this anomaly was staked by G. Custer in 1987 for Nor-Acme Gold Mines Ltd. (High River Resources Ltd.) as KAY 2, 6, 7.

GEOLOGICAL SETTING:

The area is underlain by Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite paragneiss near its contact with Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 53-1). The drill hole intersected garnetiferous quartz-feldspar-biotite schist/gneiss, quartz-feldspar-biotite ± garnet gneiss and quartz-feldspar-hornblende-biotite-chlorite gneiss. Quartz-carbonate stringers, chlorite and sillimanite were noted locally.

MINERALIZATION:

Up to 30% graphite flakes and 'patches' and 5% pyrite disseminations and fine stringers were intersected over a 76 cm core length within the quartz-feldspar-hornblende-biotite-chlorite gneiss.

GEOCHEMICAL DATA:

Selected samples were assayed for Au, Ag, Cu, Zn ± Ni and Pb. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90661, 92838, 92865
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

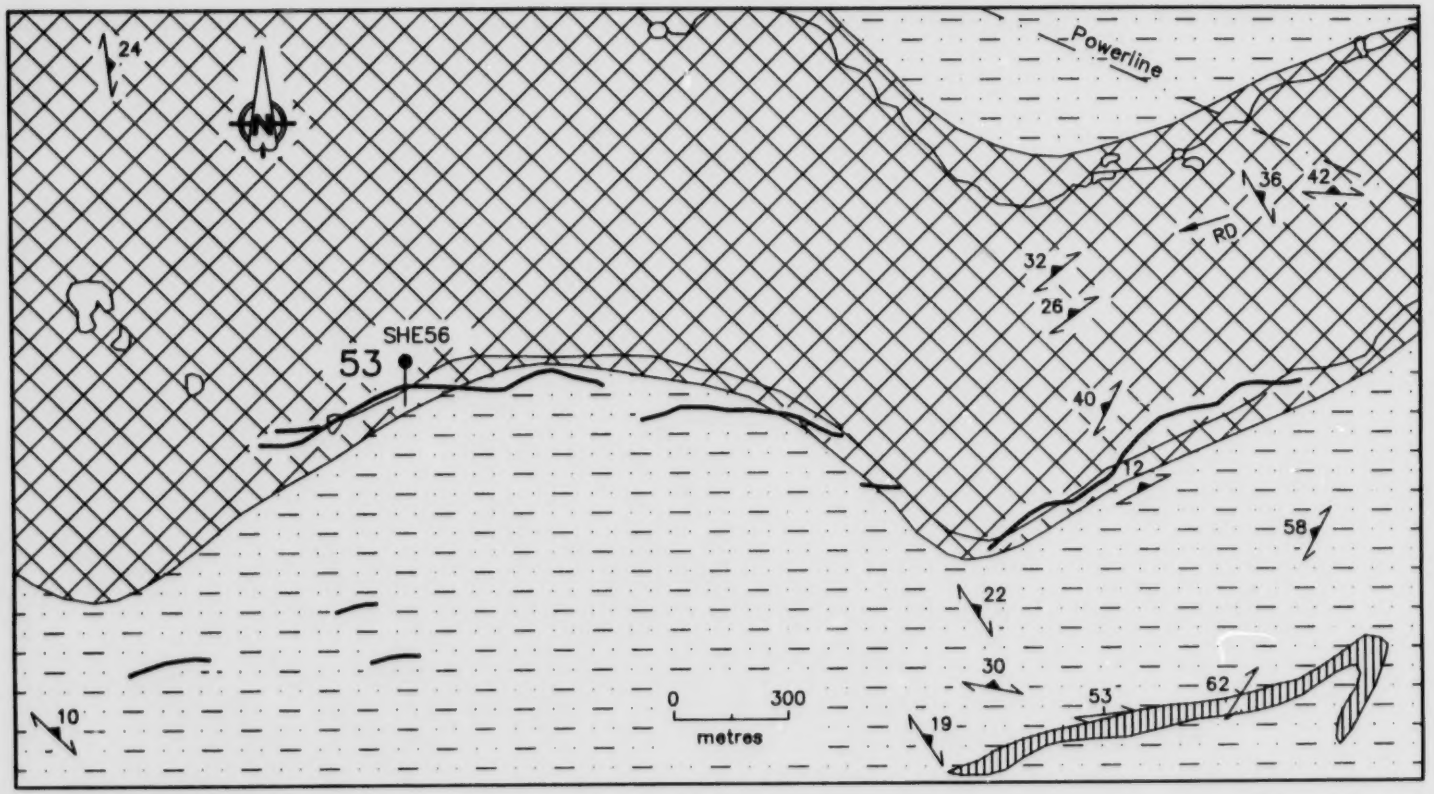


Figure 53-1: ***General geology, geophysical anomalies and drill hole location at occurrence 53.***

LOCATION: 54

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6102417N/392100E

ACCESS: Bush aircraft to Moody Lake, and traverse.

AREA: 1200 metres south of Moody Lake.

AIRPHOTO: A26365-38

EXPLORATION SUMMARY:

The first recorded claims (MOD 127 and MOD 140) were staked by Britannia Mining and Smelting Co. Ltd. *circa* 1955. Britannia carried out geological and loop-frame EM surveys during 1956 and 1957 (A.F. 90650, 90651). The EM survey defined two 100 m conductors and a single line conductor. HBED staked CB 145 over the occurrence in 1970 and performed an HLEM survey, which delineated a 360 m conductor and two single line conductors (A.F. 90649). DDH Ake 2 and 3 (203 m) were drilled in 1971 (A.F. 90649). An airborne EM and magnetometer survey by Shell Canada Resources Ltd. included the occurrence (A.F. 92513). C. Dearin staked MOOD 8 in 1983 and transferred it to Noko Resources Inc.. The claim lapsed in 1989.

GEOLOGICAL SETTING:

The area is underlain by Amisk Group metabasalt, amphibolite and/or metagabbro (Zwanzig *et al.*, 1988; Fig. 54-1). Both drill holes intersected light grey to brown biotite-plagioclase-quartz-hornblende ± chlorite ± garnet gneiss and hornblende-quartz ± biotite ± chlorite ± garnet gneiss. DDH Ake 3 terminated in 6.5 m of medium- to coarse-grained hornblendite.

MINERALIZATION:

Up to 30% graphite and 10% pyrite, and up to 10% graphite and 5% pyrite were intersected over core lengths of 2.3 m and 80 cm, respectively, within the biotite-plagioclase-quartz-hornblende gneiss in DDH Ake 3. In DDH Ake 2 numerous sections of up to 10-15% graphite plus pyrite and/or pyrrhotite, approximately a metre in length or less, occur in both rock types. Up to 5% pyrite, 30% pyrrhotite and 30% graphite occur within hornblende-quartz ± biotite ± chlorite ± garnet gneiss over a core length of 1.6 m in DDH Ake 2.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 90649, 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

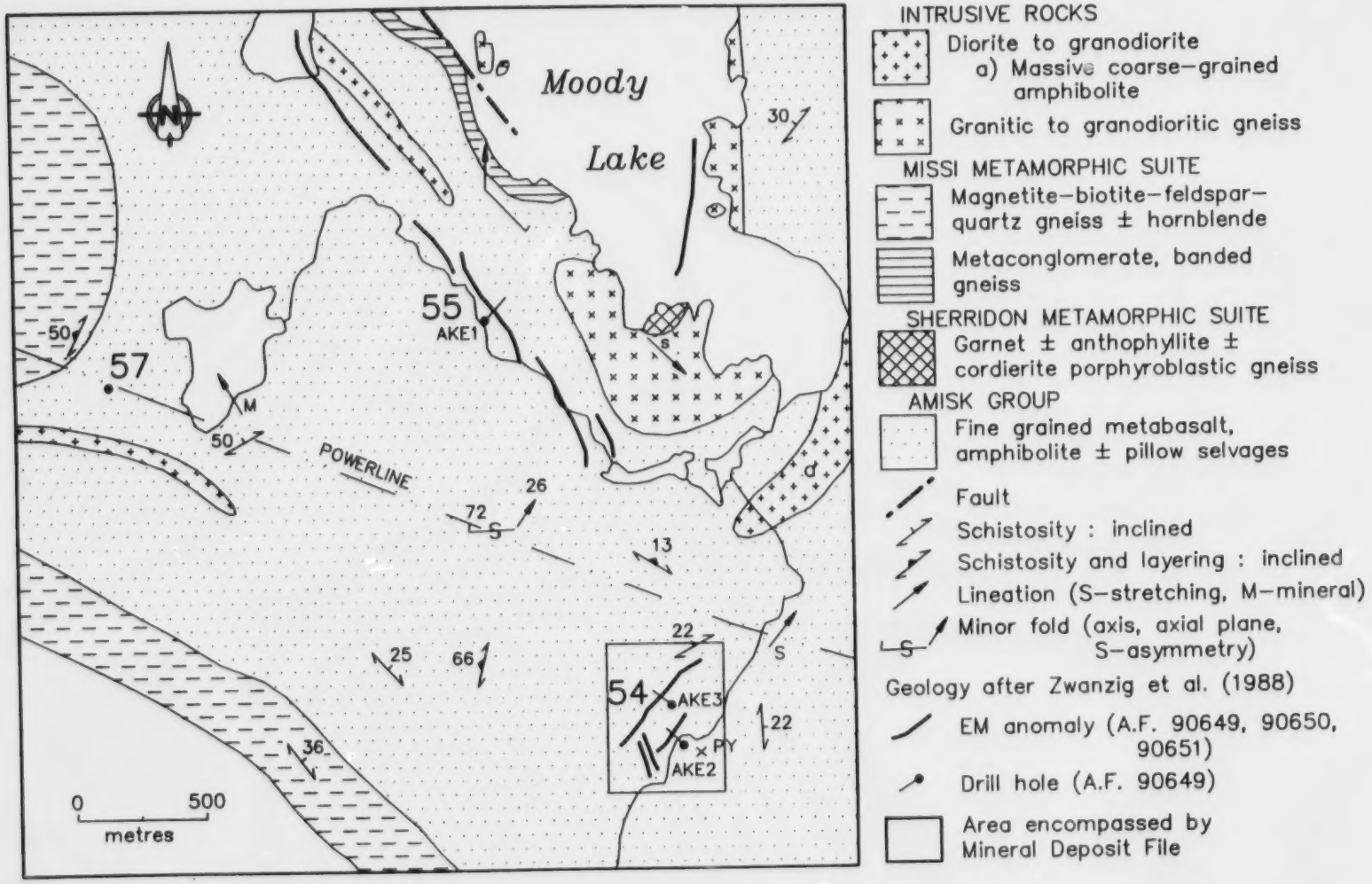


Figure 54-1: General geology, geophysical anomalies and drill hole locations at occurrences 54, 55 and 57.

LOCATION: 55

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6103810N/391427E

ACCESS: Bush aircraft to Moody Lake, and traverse.

AREA: Southwest of Moody Lake (Fig. 54-1).

AIRPHOTO: A26365-40

EXPLORATION SUMMARY:

The area around the occurrence was staked (MOD 72, 85, 86, 99, 100, 113) for Britannia Mining and Smelting Co. Ltd. *circa* 1955. Geological and loop-frame EM surveys were performed during 1956 and 1957 (A.F. 90650, 90651). A discontinuous 1650 m long EM anomaly was delineated, as well as an untested 360 m long anomaly under Moody Lake. The area was staked *circa* 1970 for HBED as CB 145. A HLEM survey in 1970 defined two 360 m long anomalies (A.F. 90649). DDH Ake 1 (65 m) was drilled to test one anomaly in 1971 (A.F. 90649). The area was included in an airborne EM and magnetometer survey performed for Shell Canada Resources Ltd. in 1980 (A.F. 92513). G. Moodie staked MOOD 5 for C. Dearin in 1983. It was transferred in 1983 to Noko Resources Inc..

GEOCHEMICAL DATA:

None.

GEOLOGICAL SETTING:

The area is underlain by Amisk Group metabasalt, amphibolite and/or metagabbro (Zwanzig *et al.*, 1988; Fig. 54-1). DDH Ake 1 intersected light and dark grey biotite-quartz-plagioclase ± garnet gneiss.

MINERALIZATION:

The drill hole intersected approximately 1 m of trace to 10% pyrite and 25 cm of up to 10% pyrite and 50% graphite.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Although only graphite may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980).

REFERENCES:

Assessment Files 90649, 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Gale, G.H., Baldwin, D.A. and Koo J.
1980: A geological evaluation of Precambrian massive sulphide deposit potential in Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-1, 137p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

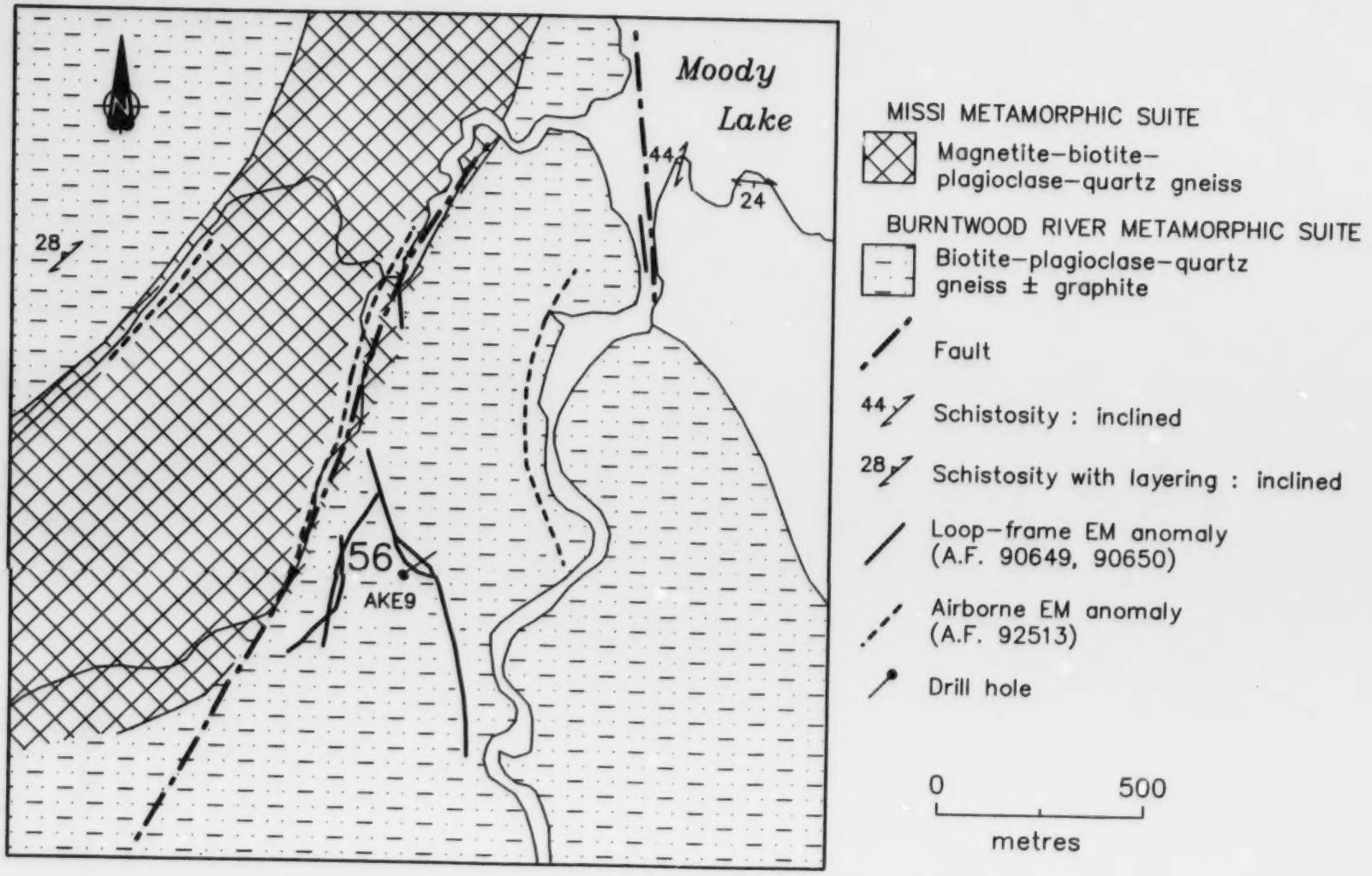


Figure 56-1: General geology, geophysical anomalies and drill hole location at occurrence 56.

LOCATION: 56

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6105221N/388722E

ACCESS: Bush aircraft to Moody Lake, and traverse.

AREA: 1 km southwest of Moody Lake.

AIRPHOTO: A26325-132, A26369-28

EXPLORATION SUMMARY:

The area around the occurrence was staked as MOD 40, 41, 53, 54, 66 and 67 for Britannia Mining and Smelting Co. Ltd. in 1956. Loop-frame EM and geological surveys were performed in 1956 and 1957. The EM survey identified several conductors (A.F. 90650, 90651). HBED staked CB 144 over the area in 1970, completed an HLEM survey and DDH Ake 9 (70 m) in 1971 (A.F. 90649). The area was included in an airborne EM and magnetometer survey done for Shell Canada Resources Ltd. in 1980 (A.F. 92513). E. Bjornson staked SHE 12450 (CB 12450) for HBED in 1981 (cancelled 1983). G.B. Custer staked KAY 5 over the occurrence for Nor-Acme Gold Mines Ltd. (now High River Resources Ltd.) in 1987.

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 56-1). The drill hole intersected biotite-plagioclase-quartz gneiss and hornblende-plagioclase-biotite-quartz ± garnet gneiss.

MINERALIZATION:

Approximately 8 m of trace to 2% pyrite ± up to 10% graphite ± trace pyrrhotite mineralization was intersected within the hornblende-plagioclase-biotite-quartz ± garnet gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90649, 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

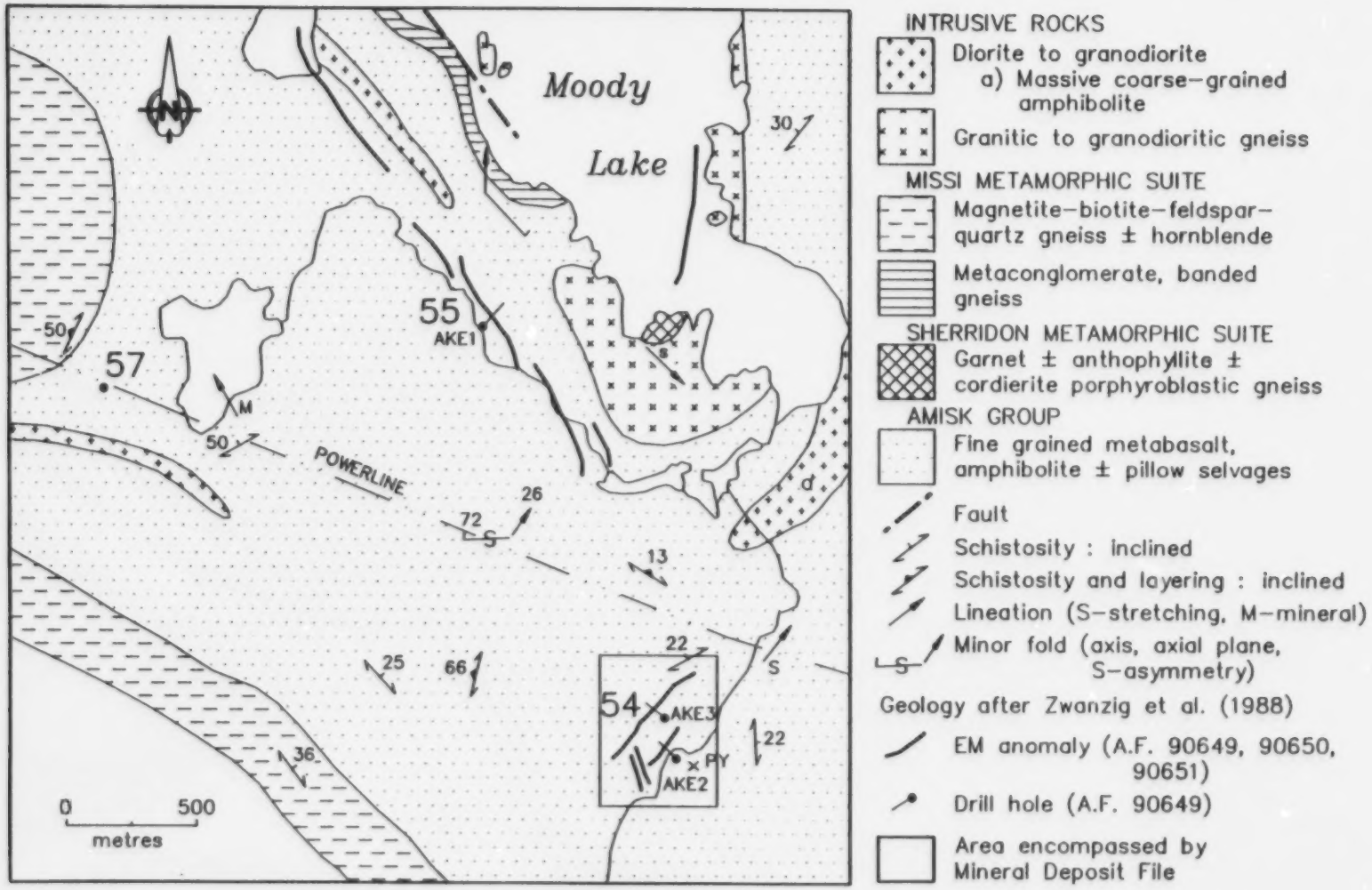


Figure 57-1: General geology, geophysical anomalies and drill hole locations at occurrences 54, 55 and 57.

LOCATION: 57

NAME:

UTM: 6103645N/390015E

ACCESS: Bush aircraft to Moody Lake. and traverse.

EXPLORATION SUMMARY:

Britannia Mining and Smelting Co. Ltd. staked MOD 96 in 1956. Prospecting during 1956 and 1957 located disseminated sulphides (A.F. 90651). The location is currently covered by claim MOOD 4 held by Noko Resources Inc.

GEOLOGICAL SETTING:

The area is underlain by Amisk Group metabasalt, amphibolite and/or metagabbro (Zwanzig *et al.*, 1988; Fig. 57-1).

MINERALIZATION:

Pyrite disseminations and seams were observed in an outcrop of magnetite-bearing dioritic gneiss (A.F. 90651).

AREA: 1300 metres southwest of Moody Lake near powerline.

AIRPHOTO: A26369-30

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 90651
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

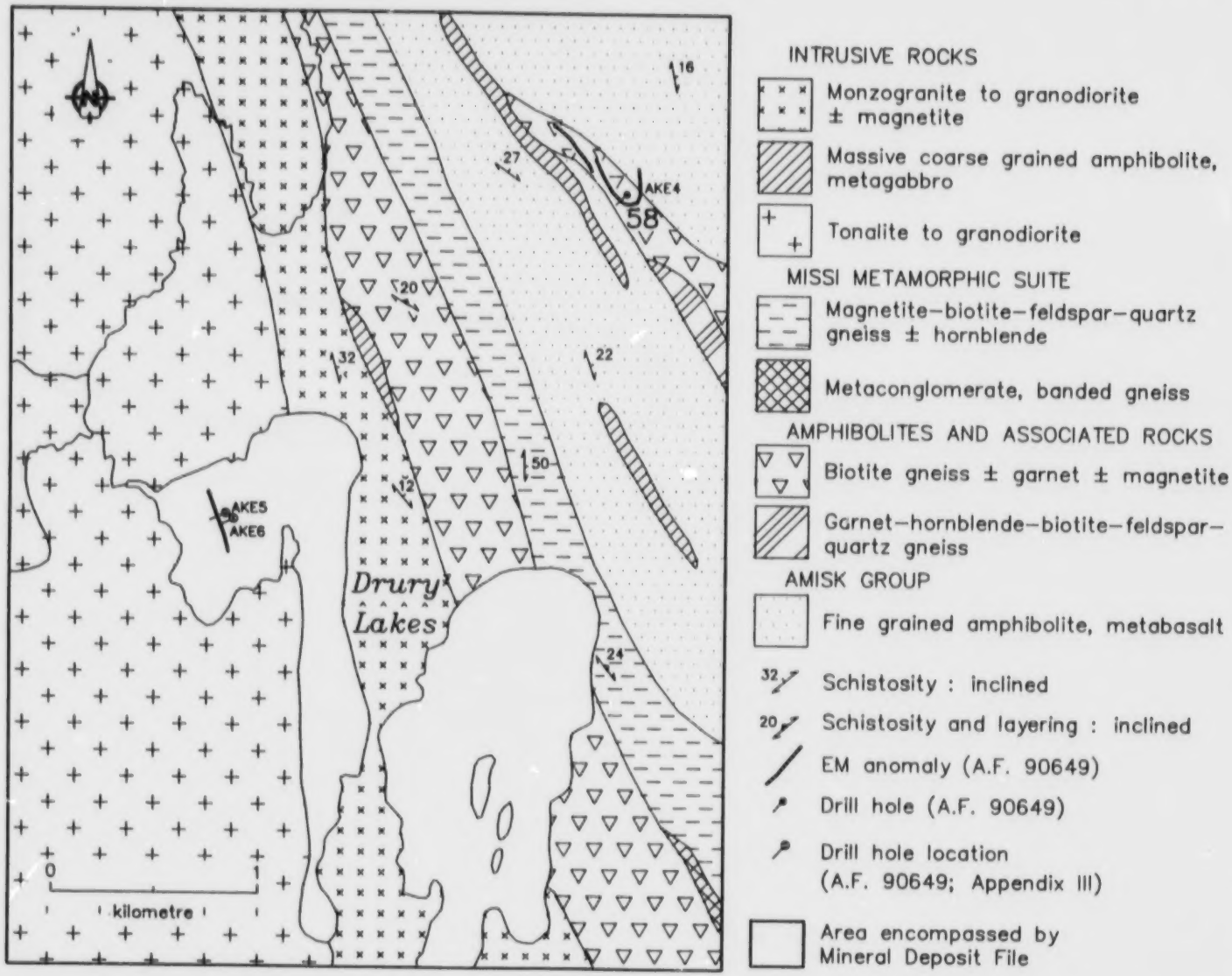


Figure 58-1: General geology, geophysical anomalies and drill hole locations at occurrence 58.

LOCATION: 58

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6099597N/393310E

ACCESS: Bush aircraft to Drury Lakes or Martell Lake, and traverse.

AREA: northwest of Martell (*aka* Wood) Lake.

AIRPHOTO: A26365-37

EXPLORATION SUMMARY:

The vicinity of the occurrence was staked by HBED in 1970. A HLEM survey in 1970 delineated two one line conductors. DDH AKE 4 (55 m) tested one of the two line conductors (A.F. 90649). All holes were drilled in 1971. A portion of the area has been held since 1983 by Noko Resources Inc., who conducted prospecting, geophysics and soil geochemistry surveys between 1984 and 1987 (Canadian Mines Handbook, 1986-87; Financial Post, 1986). High River Gold Mines Ltd. staked part of the area in 1987.

GEOLOGICAL SETTING:

The area is underlain by biotite gneiss ± garnet ± magnetite flanked by amphibolite and/or metagabbro, garnet-hornblende-biotite-feldspar-quartz gneiss and Amisk Group metabasalt (Zwanzig, *et al.*, 1988; Fig. 58-1). The drill hole intersected light grey to dark green and brown, biotite-plagioclase-quartz gneiss with up to 90 cm thick interlayers of hornblende-plagioclase ± garnet gneiss, and hornblende-plagioclase ± biotite ± garnet gneiss. These units are separated by a 1.2 m wide breccia zone that consists of coarse chloritized fragments in calcite cement (A.F. 90649).

MINERALIZATION:

DDH AKE 4 intersected numerous short sections (less than 90 cm) of trace to 5% disseminated pyrite ± graphite within the biotite-plagioclase-quartz ± garnet gneiss. Two intersections of 30 cm and 6 cm within the same unit contained up to 60% graphite plus 20% and 10% pyrrhotite, respectively. The breccia zone contains up to 3% pyrite.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. Although a considerable amount of graphite (or exclusively graphite) may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980).

REFERENCES:

Assessment File 90649
Manitoba Energy and Mines, Minerals Division.

The Financial Post Information Service
1986: Survey of Mines and Energy Resources, 1986; MacLean Hunter Limited, Toronto, Ontario, p. 696.

Canadian Mines Handbook
1986-87: Gardiner, C.D. (Ed.); Northern Miner Press Limited, Toronto, Ontario, p. 496.

Gale, G.H., Baldwin, D.A. and Koo J.
1980: A geological evaluation of Precambrian massive sulphide deposit potential in Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-1, 137p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

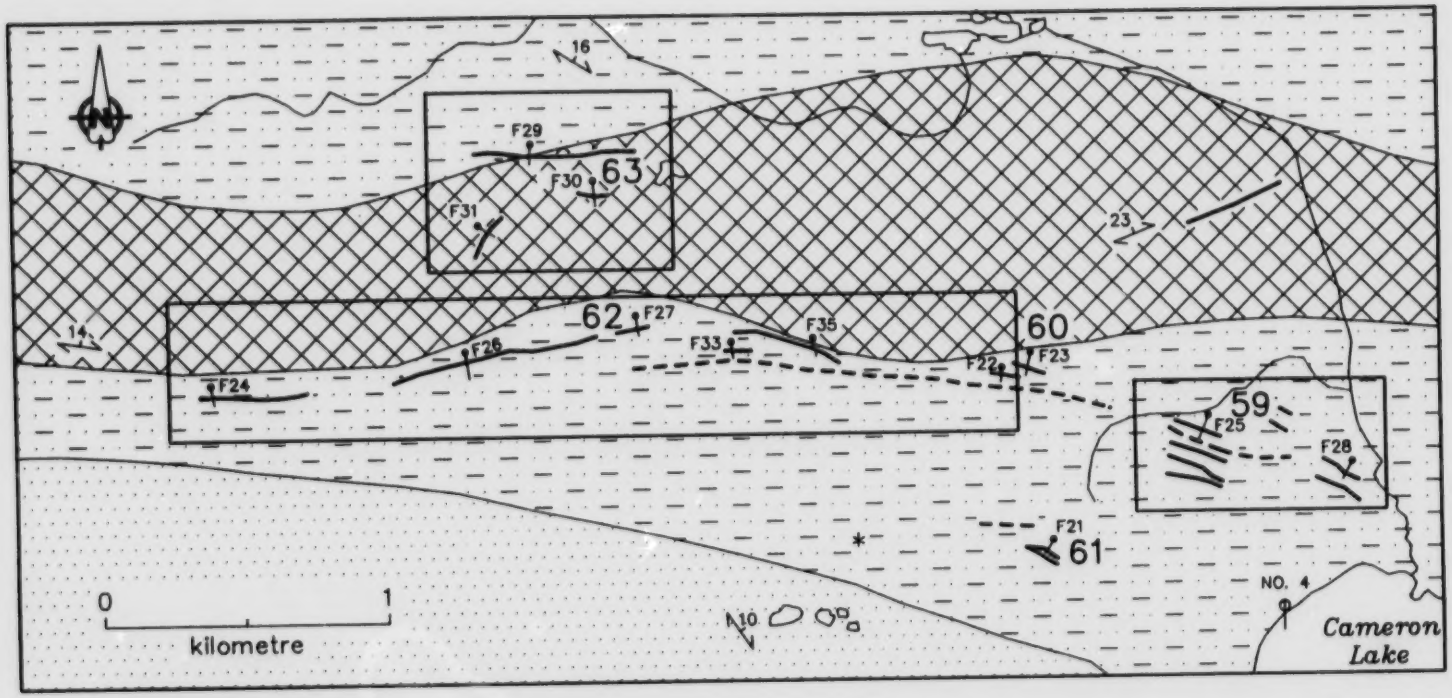


Figure 59-1: ***General geology, geophysical anomalies and drill hole locations at occurrences 59, 60, 61, 62 and 63.***

LOCATION: 59

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6120895N/381202E

ACCESS: Bush aircraft to Walton Lake, and traverse.

AREA: 400 metres north of Cameron Lake.

AIRPHOTO: A26326-229

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1942. HBED performed a loop-frame EM survey during the winter of 1957-58 that delineated anomalies on claims FIN 203, 204, 227 and 228 (A.F. 91598). DDH F25 and F28 were drilled (total length 260 m) in 1959 (A.F. 91598). Minerals Technology Corporation (M.T.C.) performed geology, soil geochemistry and EM geophysical surveys plus trenching in the area later that year (A.F. 90666). The area around the occurrence was included in airborne EM and magnetometer surveys performed for Sherritt Gordon Mines Ltd. in 1972 and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513). Noko Resources Inc. performed VLF-EM and magnetometer surveys in 1985 in the area (A.F. 92665).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 59-1). DDH F28 intersected quartz-biotite ± garnet ± plagioclase ± carbonate ± graphite (greywacke) gneiss and hornblende-plagioclase gneiss. Graphite-bearing quartz-biotite ± garnet ± plagioclase ± carbonate (greywacke) gneiss was intersected over the first 30 m of DDH F25. Down hole, a sequence of nongraphitic quartz-biotite ± plagioclase ± hornblende ± garnet ± carbonate gneiss and quartz-plagioclase-hornblende ± biotite gneiss was intersected.

MINERALIZATION:

DDH F28 and F25 intersected several short sections of trace to minor amounts of disseminated pyrite, pyrrhotite ± graphite. Three intersections of near solid pyrrhotite with trace amounts of pyrite, 21, 12 and 37 cm thick, hosted by nongraphitic quartz-plagioclase-biotite gneiss were observed in DDH F25 core.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 91598, 91695, 92513, 92665
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 60

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6121148N/380600E

ACCESS: Bush aircraft to Walton Lake, and traverse.

AREA: 2 km north of Walton Lake (Fig. 59-1).

AIRPHOTO: A26236-228

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1957. HBED performed a loop-frame EM survey during the winter of 1957-58 that defined an anomaly on claim FIN 154 (A.F. 91598). DDH F23 was drilled (length 90 m) in 1959 (A.F. 91598). The area around the occurrence was included in an airborne EM and magnetometer survey performed for Shell Canada Resources Ltd. in 1980 (A.F. 92513). Noko Resources Inc. performed VLF-EM and magnetometer surveys in the area in 1985 (A.F. 92665).

GEOLOGICAL SETTING:

The occurrence is hosted by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss near its contact with Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite paragneiss (Zwanzig *et al.*, 1988; Fig. 59-1). The drill hole intersected quartz-plagioclase-biotite ± garnet and quartz-plagioclase-hornblende-biotite ± garnet gneiss.

MINERALIZATION:

Graphite flakes were observed locally within the drill core. Trace amounts of pyrite within quartz-plagioclase-biotite-garnet ± graphite gneiss that contains carbonate and chlorite filled fractures occur in one section of the drill core (*cf.* Location 62).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 92513, 92665
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 61

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6120514N/380607E

ACCESS: Bush aircraft to Walton Lake, and traverse.

AREA: 1300 metres north of Walton Lake (Fig. 59-1).

AIRPHOTO: A26326-229

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1948. HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 90665, 91598). DDH F21 was drilled (length 44 m) in 1958 on claim FIN 229 (A.F. 91598). The area around the occurrence was included in airborne EM and magnetometer surveys performed for Sherritt Gordon Mines Ltd. in 1972 and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 59-1) previously mapped as Sherridon Group quartz-rich gneiss by Robertson (1953). DDH F21 intersected a sequence of nongraphitic quartz-plagioclase gneiss. Biotite, hornblende and garnet are locally important constituents of the gneiss. Zwanzig *et al.* (1988) identified garnet-anthophyllite rock in outcrop approximately 650 m west along strike of the drill hole.

MINERALIZATION:

Minor disseminated pyrite ± pyrrhotite mineralization was observed throughout the first 19 m of drill core. The disseminated mineralization terminates at a 43 cm layer of near solid pyrrhotite ± pyrite with trace amounts of chalcopyrite and sphalerite. 'Considerable' carbonate occurs within the initial 13 m of core.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Features that are commonly associated with massive sulphide type deposits include: 1) the absence of graphite associated with the mineralization (*cf.* Sherridon Cu-Zn deposit, 63N/3); 2) the existence of disseminated iron sulphides and carbonate (alteration?) up hole, and lack of same down hole, from the near solid sulphide layer; 3) the spatially associated garnet-anthophyllite rock (Fe-Mg metasomatic alteration); and 4) the short, 60 m, strike length of the conductor.

REFERENCES:

Assessment Files 90665, 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 62

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6121348N/379179E

ACCESS: Bush aircraft to Walton Lake, and traverse.

AREA: 2 km north of Walton Lake (Fig. 59-1).

AIRPHOTO: A26326-228, A26327-52

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1957. HBED performed a loop-frame EM survey during the winter of 1957-58 that defined anomalies on claims FIN 165-167 and 196-201 (A.F. 91598). DDH F22, F24, F26, F27, F33 and F35 were drilled (total length 342 m) in 1958 (A.F. 91598). The area around the occurrence was included in an airborne EM and magnetometer survey performed by Shell Canada Resources Ltd., in 1980 (A.F. 92513).

GEOLOGICAL SETTING:

The occurrence is located at or near the contact between Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss and Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite paragneiss (Zwanzig *et al.*, 1988; Fig. 59-1). All DDH intersected a sequence of quartz-biotite gneiss, quartz-plagioclase-biotite gneiss and quartz-plagioclase-hornblende gneiss. Garnet and chlorite are locally important constituents of these rocks. Quartzite was identified in DDH F35.

MINERALIZATION:

Local intersections of trace to minor amounts of disseminated pyrite and/or pyrrhotite and/or graphite were observed in all drill holes. In addition, all drill holes encountered an up to 5 m thick graphitic schist with minor amounts of disseminated pyrite mineralization. The mineralogy of the schist is variable and can contain quartz, biotite, chlorite and/or hornblende.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. The graphitic schist may mark the contact zone between Burntwood River Metamorphic Suite paragneiss and Missi Metamorphic Suite paragneiss. The presence of chlorite within the gneiss sequence and schist zone probably developed during retrograde metamorphic reactions associated with shears and/or faults. The shears and/or faults may be localized at the contact between these major rock suites.

REFERENCES:

Assessment Files 91598, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 63

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6121823N/379032E

ACCESS: Bush aircraft to Walton Lake, and traverse.

AREA: 2.5 km north of Walton Lake (Fig. 59-1).

AIRPHOTO: A26327-52

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1957. HBED performed a loop-frame EM survey in the area during the winter of 1957-58 (A.F. 91598). DDH F29, F30 and F31 were drilled (total length 146 m) in 1958 (A.F. 91598). The area around the occurrence was included in an airborne EM and magnetometer survey by Shell Canada Resources Ltd., in 1980 (A.F. 92513).

GEOLOGICAL SETTING:

The occurrence is located at or near the contact between Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite paragneiss and Burntwood River Metamorphic Suite quartz-feldspar-garnet-biotite ± cordierite ± sillimanite migmatite (Zwanzig *et al.*, 1988; Fig. 59-1). Quartz-biotite ± garnet gneiss and quartz-plagioclase ± biotite ± hornblende ± garnet gneiss were intersected in all drill holes. Carbonate, chlorite and talc were observed locally. A quartz-carbonate-biotite gneiss was intersected in DDH F29 and a graphitic schist was intersected in DDH F31.

MINERALIZATION:

Intersections of quartz-biotite gneiss 'well mineralized' with pyrite and pyrrhotite ± chalcopyrite over core lengths of 30 and 50 cm (DDH F31) and 1.8 m (DDH F30) were documented. The quartz-carbonate-biotite gneiss intersected in DDH F29 is 'well mineralized' with pyrite over 80 cm of core length. Trace to minor amounts of disseminated iron sulphide minerals and graphite were observed locally in the drill core.

GEOCHEMICAL DATA:

None.

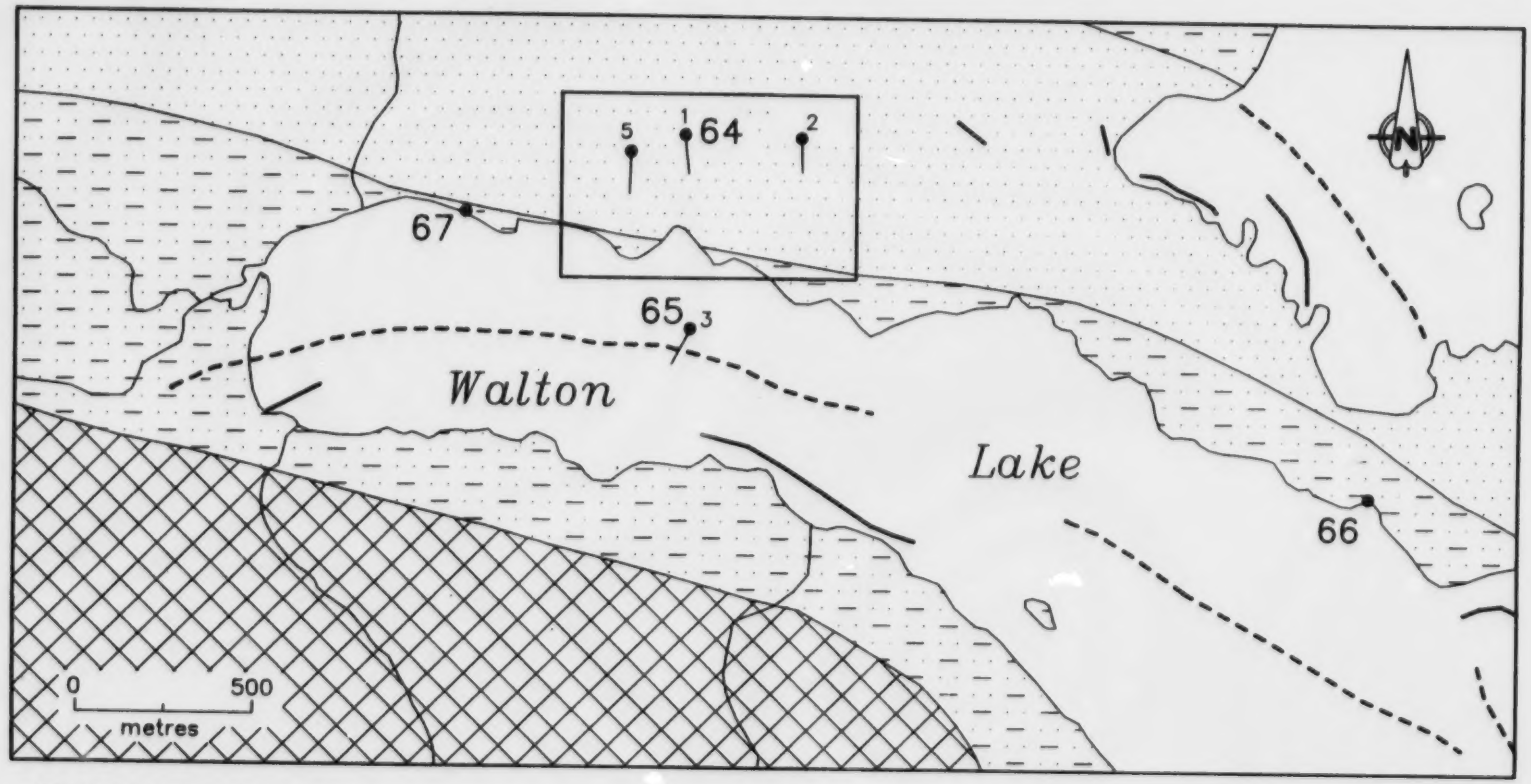
CLASSIFICATION:

Disseminated mineralization - not classified (*cf.* Location 62).

REFERENCES:

Assessment Files 91598, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.



MISSI METAMORPHIC SUITE

Magnetite–biotite–feldspar–quartz gneiss ± hornblende

BURNTWOOD RIVER METAMORPHIC SUITE

Biotite–garnet–feldspar–quartz gneiss ± sillimanite

Quartz–feldspar–garnet–biotite migmatite ± sillimanite ± cordierite

Geology after Zwanzig et al. (1988)

EM anomaly (A.F. 90665, 91598)

Airborne EM anomaly (A.F. 92513)

Drill hole (A.F. 90666)

Area encompassed by Mineral Deposit File

Figure 64-1: General geology, geophysical anomalies and drill hole locations at occurrences 64, 65, 66 and 67.

LOCATION: 64

NAME: Carmen Group (Wright, 1931)
UTM: 6119678N/379492E
ACCESS: Bush aircraft to Walton Lake, and traverse.

AREA: 500 metres north of Walton Lake.
AIRPHOTO: A26326-230, A26327-52

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. Wright (1931) investigated the "Carmen Group" of claims at or near Location 64 and reported finding pits in the area. HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 91598). Minerals Technology Corporation (M.T.C.) drilled DDH 1, 2 and 5 (total length 336 m) in 1968 (A.F. 90666). M.T.C. conducted geology, soil geochemistry and EM geophysical surveys and trenching on their ground later in 1968 (A.F. 90666). The area around the occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513).

GEOLOGICAL SETTING:

The area (Fig. 64-1) is underlain by Burntwood River Metamorphic Suite quartz-feldspar-garnet-biotite ± cordierite ± sillimanite migmatite (Zwanzig *et al.*, 1988) that was previously mapped as Sherridon Group quartz-rich gneiss by Robertson (1953). DDH 1 and 5 intersected a layered sequence of biotite ± quartz ± plagioclase ± garnet ± hornblende gneiss, quartzite, impure quartzite and minor amphibolite. Garnet-, green amphibole- and hornblende-rich zones/layers are locally prominent. DDH 2 intersected predominantly quartzite and impure quartzite with minor amphibolite interlayers.

MINERALIZATION:

Wright (1931) documented pyrrhotite mineralization plus trace amounts of sphalerite and chalcopyrite within black, hornblendic and quartzose gneisses exposed in the trenches. DDH 1 intersected minor disseminated pyrite ± chalcopyrite mineralization over 5.5 m within a biotite-hornblende gneiss. Numerous intersections (10 m in core length or less) that contain up to 5% disseminated iron sulphide occur in DDH 5. One section of pyrrhotite stringers (up to 1 cm wide) and another of pyrite and pyrrhotite bands (unrecorded thicknesses) were observed in drill core from DDH 2.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90666, 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Wright, J. F.
1931: Geology and mineral deposits of part of northwest Manitoba; In Geological Survey of Canada, Summary Report, 1930, Part C, p. 1-124.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 65

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6119196N/379659E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake.

AREA: North Walton Lake (Fig. 64-1).

AIRPHOTO: A26327-51

EXPLORATION SUMMARY:

HBED staked FIN 333 in 1957. A loop-frame EM survey was performed in the winter of 1957-58 and included the area around the occurrence (A.F. 91598). Anomalous zones were not identified. After the staking of KIM 42 by Minerals Technology Corporation in 1968, DDH 3 (total depth 81 m) was drilled (A.F. 90666). The company performed geological, soil geochemical and EM geophysical surveys plus trenching in the area later that year (A.F. 90666). The area was covered by an airborne EM and magnetic survey performed for Sherritt Gordon Mines Ltd. in 1972 and for Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513).

GEOLOGICAL SETTING:

Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss crops out on the north and south shores of Walton Lake near the occurrence (Fig. 64-1; Zwanzig *et al.*, 1988). DDH 3 was collared on Walton Lake and intersected impure massive quartzite ± biotite ± garnet.

MINERALIZATION:

A 1.2 m layer of moderate to near solid pyrite hosted by impure biotitic quartzite was documented in the drill log (A.F. 90666).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 90666, 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 66

NAME:

UTM: 6118663N/381550E

ACCESS: Bush aircraft to Walton Lake.

AREA: North shore of Walton Lake (Fig. 64-1).

AIRPHOTO: A26326-134

EXPLORATION SUMMARY:

The area around the occurrence has been staked intermittently since 1928. HBED included The area around the occurrence in a loop-frame EM survey performed during the winter of 1957-58 (A.F. 91598). The area was included in airborne EM and magnetometer surveys performed for Sherritt Gordon Mines Ltd. in 1972 and for Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513). Zwanzig *et al.* (1988) examined the occurrence.

GEOLOGICAL SETTING:

The area is underlain by biotite-garnet-feldspar-quartz gneiss ± sillimanite of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 64-1).

MINERALIZATION:

Minor amounts of disseminated arsenopyrite were documented at this locality (Zwanzig *et al.*, 1988).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 67

NAME:

UTM: 6119490N/379031E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake.

AREA: Northwest shore of Walton Lake (Fig. 64-1).

AIRPHOTO: A26326-230

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. HBED performed a loop-frame EM survey during the winter of 1957-58 that included The area around the occurrence (A.F. 91598). The area was covered by airborne EM and magnetometer surveys performed for Sherritt Gordon Mines Ltd. in 1972 and for Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513). Zwanzig *et al.* (1988) have examined the occurrence.

GEOLOGICAL SETTING:

The area is underlain by graphitic, biotite-garnet-feldspar-quartz gneiss ± sillimanite of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 64-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented at this locality (Zwanzig *et al.*, 1988).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 68

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6117236N/379851E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: 1.5 km southwest of Walton Lake.

AIRPHOTO: A26326-231

EXPLORATION SUMMARY:

The area around the occurrence has been staked intermittently since 1928. A loop-frame EM survey performed by HBED during the winter of 1957-58 defined a complex geophysical anomaly in the area (A.F. 91598). During the winter of 1958-59 HBED drilled DDH F48, F50 and F52 (total length 257 m) on claims FIN 464 and 495 to test these anomalies (A.F. 91598). Airborne EM and magnetometer surveys that included the area around the occurrence were performed in 1972 for Sherritt Gordon Mines Ltd., in 1979 for Elken Exploration Ltd., and in 1980 for Shell Canada Resources Ltd. (A.F. 91695, 92513, 92921). HLEM (Apex Max Min II) and magnetic surveys were performed in 1980 by Elken Exploration Ltd. in this area.

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss near its contact with Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite paragneiss (Zwanzig *et al.*, 1988; Fig. 68-1). All DDH intersected quartz-plagioclase-biotite-garnet gneiss. Layers of hornblende-plagioclase gneiss were intersected in DDH F50. Chlorite was observed locally in DDH F50 and F52.

MINERALIZATION:

All drill holes intersected minor to moderate amounts of disseminated pyrite mineralization within quartz-plagioclase-biotite-garnet gneiss. A thin, 2 mm, stringer of sphalerite associated with the disseminated sulphides was noted in DDH F48. Moderate amounts of disseminated pyrrhotite and pyrite within hornblende-plagioclase gneiss and trace amounts of disseminated chalcopyrite were observed in DDH F50.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92513, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

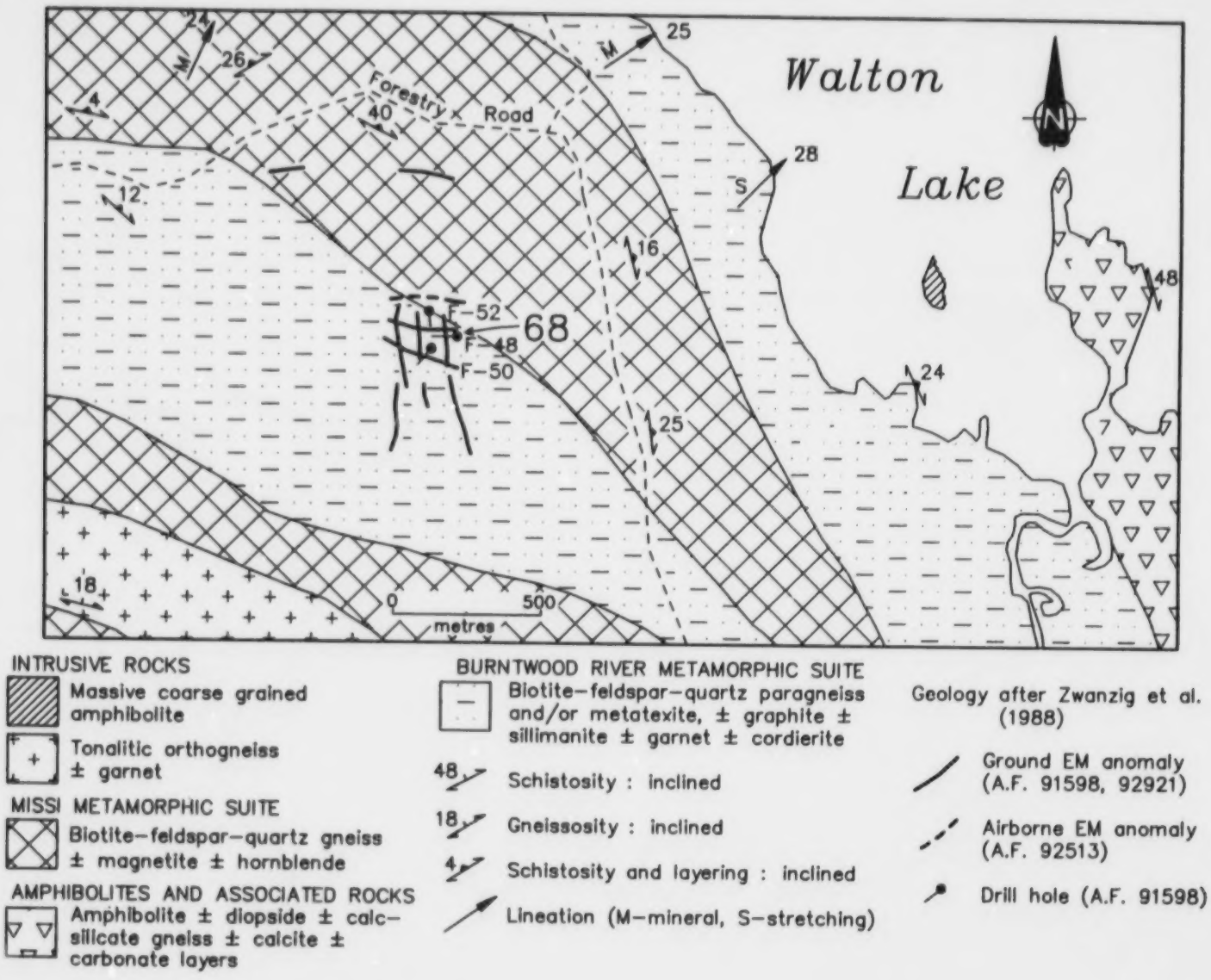


Figure 68-1: General geology, geophysical anomalies and drill hole locations at occurrence 68.

LOCATION: 69

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6117125N/381222E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: South shore of Walton Lake.

AIRPHOTO: A26326-32

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. A loop-frame EM survey performed by HBED during the winter of 1957-58 defined anomalies in the area (A.F. 91598). Three holes (F42, F44, F46) were drilled (total length 259 m) by HBED in 1958 to test anomalies on claims FIN 467, 492 and 491 (A.F. 91598). Airborne EM and magnetometer surveys that included the area around the occurrence were performed in 1972 by Sherritt Gordon Mines Ltd., in 1979 by Elken Exploration Ltd., and in 1980 by Shell Canada Resources Ltd. (A.F. 91695, 92513, 92921). In 1985 Catear Resources Ltd., in joint venture with Noko Resources Inc. performed VLF-EM, magnetic, CEM (horizontal loop mode) and geological surveys, and prospected in the area (A.F. 92904). Ostry (1986) examined the geology in the vicinity of the occurrence.

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 69-1). The drill holes intersected quartz-plagioclase-biotite ± garnet ± carbonate ± hornblende ± graphite gneiss. Carbonate gneiss (DDH F42) and hornblende-plagioclase ± garnet gneiss (DDH F42 and F44) were also intersected.

MINERALIZATION:

A 5.3 m thick carbonate gneiss with trace to minor amounts of disseminated graphite and pyrite and a 24 cm near solid pyrite-pyrrhotite band/layer was intersected in DDH F42. Trace amounts of disseminated pyrite ± graphite were observed in DDH F44 and F4.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 91598, 91695, 92513, 92921
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1986: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1986, p. 100-106.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

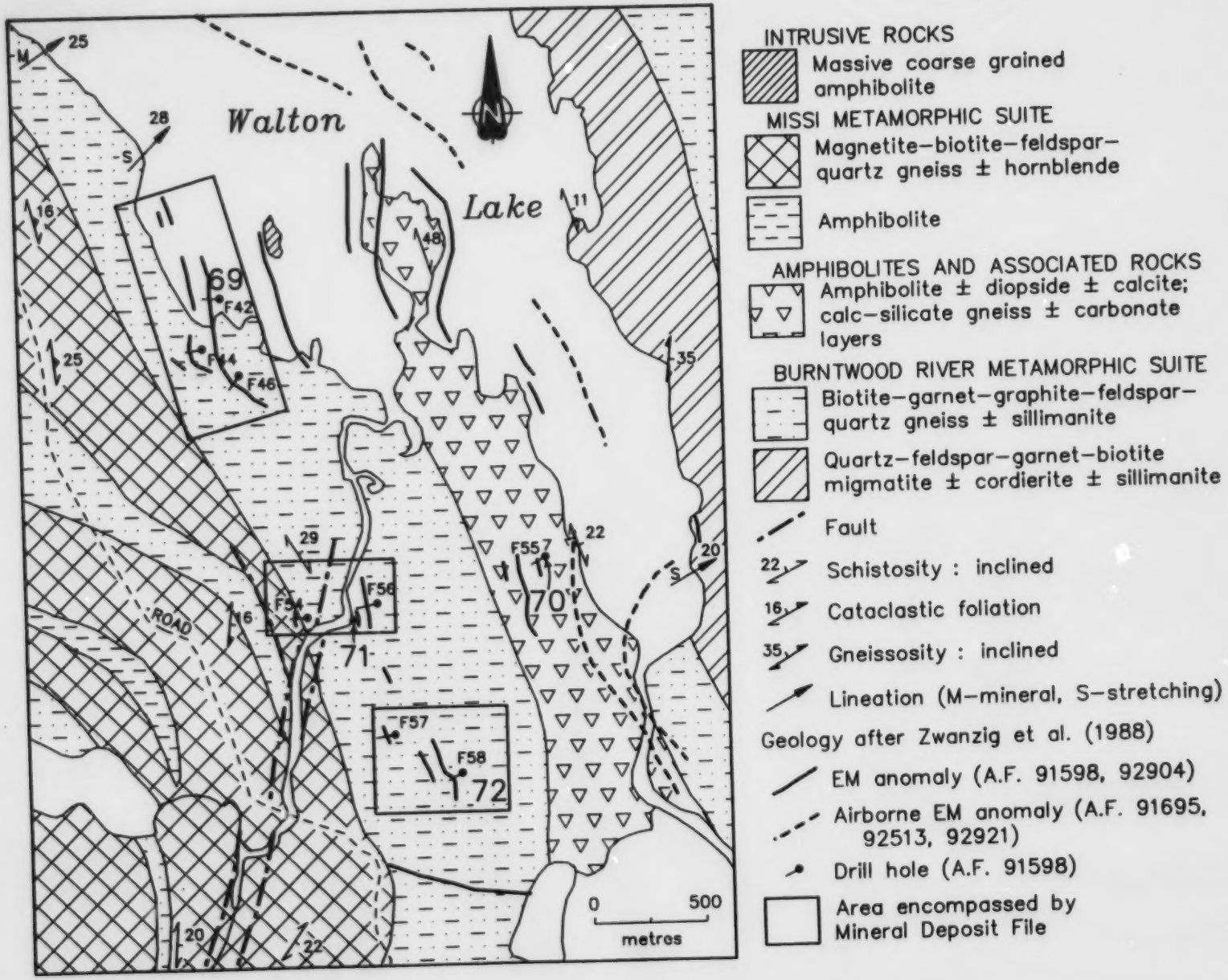


Figure 69-1: General geology, geophysical anomalies and drill hole locations at occurrences 69, 70, 71 and 72.

LOCATION: 70

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6115916N/382601E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: South end of Walton Lake (Fig. 69-1).

AIRPHOTO: A26326-132

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. HBED performed a loop-frame EM survey during the winter of 1957-58 that defined anomalies in the area (A.F. 91598). DDH F55 was drilled (length 70 m) by HBED in 1959 to test an anomaly on claim FIN 556 (A.F. 91598). The area around the occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972, Elken Exploration Ltd. in 1979, and Shell Canada Resources Ltd. in 1980. (A.F. 91695, 92513, 92921). The geology in the area was examined by Ostry (1986).

GEOLOGICAL SETTING:

The area is underlain by amphibolite ± garnet ± diopside ± calcite, hornblende-plagioclase gneiss and biotite ± garnet ± magnetite gneiss (Zwanzig *et al.*, 1988; Fig. 69-1). Hornblende-plagioclase gneiss and 'altered' hornblende-plagioclase gneiss were intersected in DDH F55.

MINERALIZATION:

Approximately 50 cm of pyrite, pyrrhotite with trace amounts of chalcopyrite and sphalerite 'mineralization' (moderate to near solid?) hosted by hornblende-plagioclase-chlorite gneiss with local concentrations of carbonate, biotite and graphite was intersected in the drill hole. Disseminated pyrite mineralization extends approximately 20 m up hole and 9.7 m down hole from the sulphide layer/band. A 'slight' chlorite component is noted in all rocks up hole from the sulphide layer/band, i.e., the hornblende-plagioclase gneiss and altered hornblende-plagioclase gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The presence of chlorite and disseminated pyrite mineralization up hole from the sulphide layer/band is suggestive of alteration that is commonly associated with massive sulphide type deposits.

REFERENCES:

Assessment Files 91598, 91695, 92513, 92921
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1986: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1986, p. 100-106.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 71

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6115722N/381745E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: 1 km southwest of Walton Lake (Fig. 69-1).

AIRPHOTO: A26326-32

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. HBED performed a loop-frame EM survey during the winter of 1957-58 that located anomalies in the area on claims FIN 557, 558, 603 and 604 (A.F. 91598). DDH F54 and F56 were drilled (total length 106 m) in 1959 (A.F. 91598). The area around the occurrence has been included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972, Elken Exploration Ltd. in 1979, and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513, 92921). Ostry (1986) examined the geology in the area.

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss and Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite paragneiss (Zwanzig *et al.*, 1988; Fig. 69-1). The occurrence is located along a prominent north-south shear/fault zone (Robertson, 1953; Zwanzig *et al.*, 1988). Fine grained quartz-feldspar-biotite-garnet ± carbonate gneiss with centimetre thick layers/lenses of green, coarse grained calcareous amphibolite and very fine grained siliceous (silicified?) gneiss was observed at this locality. DDH F54 and F56 intersected quartz-plagioclase-biotite-garnet gneiss ± chlorite, hornblende-plagioclase ± biotite ± chlorite ± garnet ± carbonate gneiss and quartz-carbonate gneiss.

MINERALIZATION:

Mineralization occurs within lenses (on the order of cms thick) within the sheared rock that consist of up to 15% fine grained disseminated pyrrhotite ± pyrite and graphite, or massive graphite (Ostry, 1986). Exposed width of the shear zone is approximately 4 m. Minor to trace amounts of disseminated graphite and pyrite occur throughout the drill core from DDH F54 and F56. A 12 cm thick section of graphite was intersected in DDH F56.

GEOCHEMICAL DATA:

A geochemical analysis of chip sample 65-86-GC-WL-127, taken across 2.5 m true width within the sulphidic zone, is presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified. The presence of chlorite within high grade metamorphic rocks of the Kisseynew gneiss belt can indicate retrograde metamorphism associated with shears and/or faults.

REFERENCES:

Assessment Files 91598, 91695, 92513, 92921
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1986: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1986, p. 100-106.

Robertson, D.S.
1953: Batty Lake map-area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 72

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6114978N/382194E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: 1 km southwest of Walton Lake (Fig. 69-1).

AIRPHOTO: A26326-132

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. Fraser (1928) and Wright (1929, 1931) examined the geology in the area in 1928. Robertson (1948, 1953) mapped the geology of the area in 1947. HBED performed a loop-frame EM survey during the winter of 1957-58 that defined anomalies on claims FIN 624 and 625 in the area (A.F. 91598). DDH F57 and F58 were drilled (total length 100 m) in 1959 (A.F. 91598). The area around the occurrence has been included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979. (A.F. 91695, 92921). In 1985 Noko Resources Inc. performed VLF-EM, magnetometer and CEM (horizontal loop mode) surveys, and prospected (A.F. 92904). Ostry (1986) examined the geology in the area.

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 69-1). DDH F57 and F58 intersected hornblende-plagioclase ± garnet ± carbonate ± talc and quartz-plagioclase-biotite-garnet ± chlorite gneiss. Chlorite-carbonate gneiss and hornblende gabbro were also intersected in DDH F57.

MINERALIZATION:

Trace amounts of disseminated pyrite and graphite ± chalcopyrite mineralization were observed locally in the drill core. A 60 cm thick graphite schist was intersected in DDH F58.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92904, 92921
Manitoba Energy and Mines, Minerals Division.

Fraser, J.M.
1928: Part of: Wekusko Lake, Grass River, Reed Lake, Morton Lake, File Lake, Loonhead Lake and Limestone Point Lake. Field trip by J.M. Fraser 1928. (I Page of notes)

Ostry, G.
1986: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1986, p. 100-106.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Wright, J.F.
1929: Kississing Lake area, Manitoba; In Summary Report, 1928, Part B, Geological Survey of Canada, p. 73B-104B.

Wright, J. F.
1931: Geology and mineral deposits of part of northwest Manitoba; In Geological Survey of Canada, Summary Report, 1930, Part C, p. 1-124.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

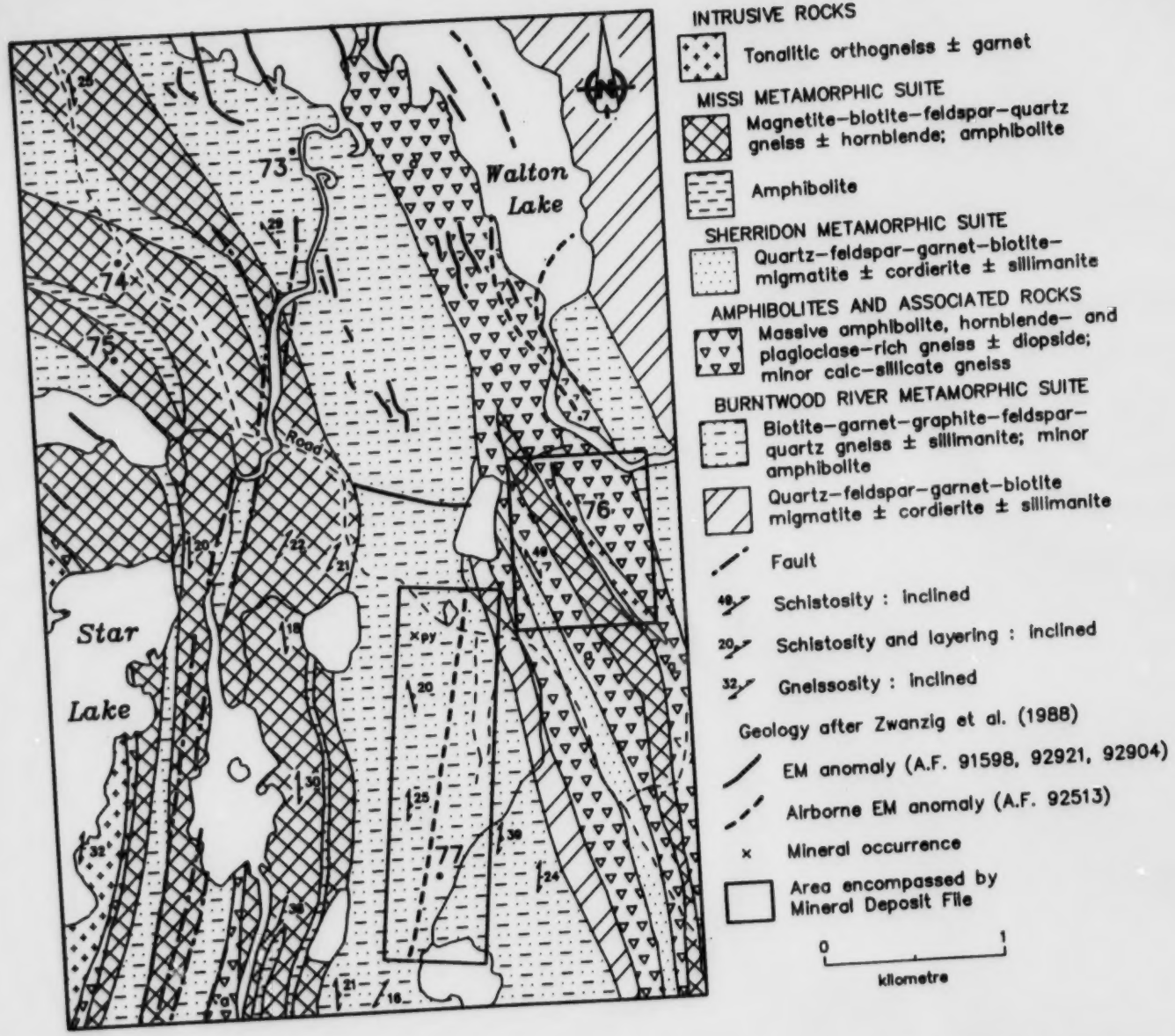


Figure 73-1: ***General geology, geophysical anomalies and drill hole locations at occurrences 73, 74, 75, 76 and 77.***

LOCATION: 73

NAME: Douglas Group
UTM: 6116456N/381684E
ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: South of Walton Lake.
AIRPHOTO: A26326-132

EXPLORATION SUMMARY:

This occurrence, known as the Douglas Group (Wright, 1929, 1931), has been staked intermittently since 1928. Robertson (1948, 1953) examined the occurrence in 1947. The area around the occurrence was included in a loop-frame EM survey performed by HBED during the winter of 1957-58 (A.F. 91598). The area around the occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972, Elken Exploration Ltd. in 1979, and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513, 92921). Ostry (1986) located three trenches in the area.

GEOLOGICAL SETTING:

The occurrence is hosted by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 73-1). The mineralization is hosted by banded amphibolite and hornblende-plagioclase gneiss, locally carbonate- and/or garnet-bearing and massive amphibolite ± garnet that is flanked on the east by quartz-feldspar-biotite ± garnet (greywacke) gneiss and west by quartz-rich, quartz-feldspar-biotite ± garnet ± carbonate gneiss.

MINERALIZATION:

Erratically distributed disseminated to solid pyrrhotite mineralization is associated with the amphibolitic rocks. The mineralized zone varies from 2 to 10 m in width.

GEOCHEMICAL DATA:

A bulk sample of solid to near solid sulphide mineralization was taken from two of the trenches. The samples, 65-86-GC-WL-126-1 and 126-2, contain 104 and 153 ppm Cu and 10 and 12 ppb Au, respectively. Results of the analyses are presented in Appendix I.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation (*cf.* Location 76).

REFERENCES:

Assessment Files 91598, 91695, 92513, 92921
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1986: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1986, p. 100-106.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Wright, J.F.
1929: Kississing Lake area, Manitoba; In Summary Report, 1928, Part B, Geological Survey of Canada, p. 73B-104B.
1931: Geology and mineral deposits of part of northwest Manitoba; In Geological Survey of Canada, Summary Report, 1930, Part C, p. 1-124.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 74

NAME: 1.5 km southwest of Walton Lake (Fig. 73-1).

UTM: 6115963N/380658E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA:

AIRPHOTO: A26326-232

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. The occurrence was included in a loop-frame EM survey performed by HBED during the winter of 1957-58 (A.F. 91598). The area around the occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). Elken performed VLF-EM and geological surveys later the same year (A.F. 92921).

GEOLOGICAL SETTING:

The area is underlain by magnetite-biotite-feldspar-quartz gneiss ± hornblende of the Missi Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 73-1). According to Elken Exploration Ltd. the mineralization is hosted by sulphide-bearing, iron-rich, argillaceous metasedimentary rocks (A.F. 92921).

MINERALIZATION:

Minor amounts of disseminated pyrrhotite and pyrite occur within the iron-rich argillaceous metasedimentary rocks (A.F. 92921).

GEOCHEMICAL DATA:

A sample described as felsic paragneiss was assayed and contained 160 ppm Cu, 42 ppm Pb, 380 ppm Zn and 0.8 ppm Ag (A.F. 92921).

CLASSIFICATION:

Disseminated mineralization-not classified.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 75

NAME:

UTM: 6115389N/380566E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake or Star Lake, and traverse.

AREA: 1 km north of Star Lake (Fig. 73-1).
AIRPHOTO: A26326-232

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. The occurrence was included in a loop-frame EM survey performed by HBED during the winter of 1957-58 (A.F. 91598). The area around the occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). Elken performed VLF-EM and geological surveys later the same year (A.F. 92921).

GEOLOGICAL SETTING:

The area is underlain by magnetite-biotite-feldspar-quartz gneiss ± hornblende and amphibolite of the Missi Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 73-1). Hornblende-plagioclase amphibolite flanked by plagioclase-biotite-garnet gneiss was observed in the vicinity of the occurrence (A.F. 92921).

MINERALIZATION:

Minor amounts of pyrrhotite and pyrite were observed within hornblende-plagioclase gneiss (A.F. 92921).

GEOCHEMICAL DATA:

A sample of amphibolite was assayed and contained 235 ppm Cu, 2 ppm Pb, 16 ppm Zn and 0.1 ppm Ag (A.F. 92921).

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

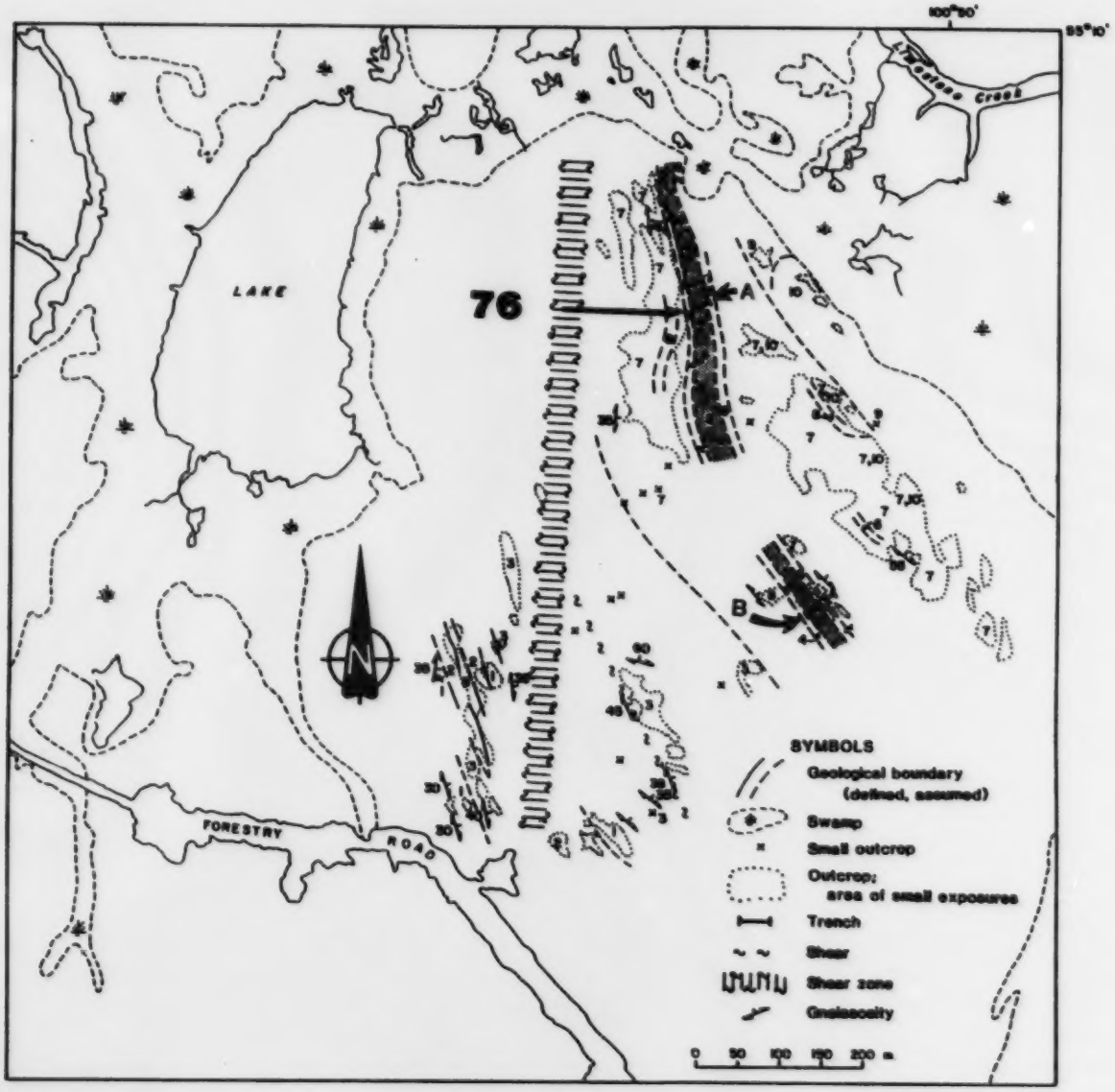


Figure 76-1: Detailed geology in the vicinity of occurrence 76. Legend (all units are fine- to medium-grained and intermediate to felsic in composition, except where noted): 1) biotite-rich qz-fd-gt gneiss with minor qz-rich qz-fd-bt-gt gneiss; 2) qz-fd-hb-gt-mt gneiss; 3) epidote-rich amphibolite; 4) amphibolite; 5) rusty weathered coarse grained gt-anthophyllite rock and silicified paragneiss; 6) amphibolite, variably garnetiferous and epidote-rich; 7) qz-rich qz-fd-bt-gt gneiss; 8) qz-fd-hb gneiss; 9) interlayered amphibolite and unit 8; and 10) coarse grained pink pegmatite (Site A - Figure 76-2; Site B - Figure 76-3).

LOCATION: 76

NAME: Douglas Group

UTM: 6114314N/383040E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: 500 metres south of southeast end of Walton Lake (Fig. 73-1).

AIRPHOTO: A26326-132

EXPLORATION SUMMARY:

This occurrence, known as the Douglas Group (Wright, 1929, 1931), has been staked intermittently since 1928. Robertson (1948, 1953) examined the occurrence in 1947. The area around the occurrence has been included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). The occurrence has been examined by Ostry (1986) and Zwanzig *et al.* (1988).

GEOLOGICAL SETTING:

The area is underlain by a layered sequence that includes Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± epidote ± muscovite paragneiss, an amphibolite ± garnet ± diopside ± calcite, calc-silicate gneiss ± carbonate layers, hornblende-plagioclase rich gneiss unit and tonalite, granodiorite and/or granite intrusive rocks (Zwanzig *et al.*, 1988; Fig. 73-1). The mineralization is hosted by a layered amphibolite sequence (Fig. 76-1) that includes, from structurally lowermost to highest: 1) a 5 to 10 m thick fine grained massive amphibolite; 2) a 5 to 10 m thick mineralized zone that contains very fine- to fine-grained siliceous (silicified?) variably garnetiferous quartzofeldspathic gneiss overlain by coarse grained garnet - anthophyllite ± sillimanite (± cordierite?) gneiss; and 3) a 15 to 20 m thick fine- to medium-grained, variably garnetiferous and epidote-rich amphibolite (Ostry, 1986). The amphibolite succession has a minimum strike length of 600 m and occurs within a sequence of quartz-rich, quartz-feldspar-biotite-garnet gneiss.

MINERALIZATION:

Pervasive oxidation has effaced all sulphide-bearing rock exposure limiting data collection, particularly at the north trenches (Fig. 76-2), to examination of muck and outcrop adjacent to the trenches. Four of the five trenches expose units within the amphibolite sequence (Fig. 76-1). The mineralization comprises up to 20% disseminated fine grained pyrrhotite ± pyrite, near solid pyrrhotite (mobilizate?), scattered lenses or thin (less than 2 mm) veins of pyrite, and layers (less than 3 cm) of pyrite. The sulphide minerals are associated with the layers of very fine grained siliceous rock and garnet-anthophyllite gneiss. A trench within the quartz-rich gneiss was located to the east of the variably garnetiferous and epidote-rich amphibolite at the south trenched area. Up to 10% fine grained disseminated pyrrhotite ± pyrite is exposed in this trench (Fig. 76-1).

GEOCHEMICAL DATA:

A total of 15 rock samples (65-86-GC-WL-20A to 20I and 65-86-GC-WL-67-1 to 67-6) were taken for geochemical analysis; type of sample (chip or bulk), rock type and position of sample are displayed on Figures 76-2 and 76-3. Rocks within the amphibolite sequence, particularly at the north trenches, contain slightly elevated Cu, Zn and Au concentrations, i.e., up to 205 ppm Cu, 198 ppm Zn and 25 ppb Au. Results of the analyses are presented in Appendix I. Five of these rock samples were also submitted for silicate whole rock analysis. These are 65-86-GC-WL-67-5 and 67-6, and 65-86-GC-WL-20B, 20D and 20E. Results of these analyses are presented in Appendix II.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation (*cf.* Location 73).

REFERENCES:

Assessment Files 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1986: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1986, p. 100-106.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

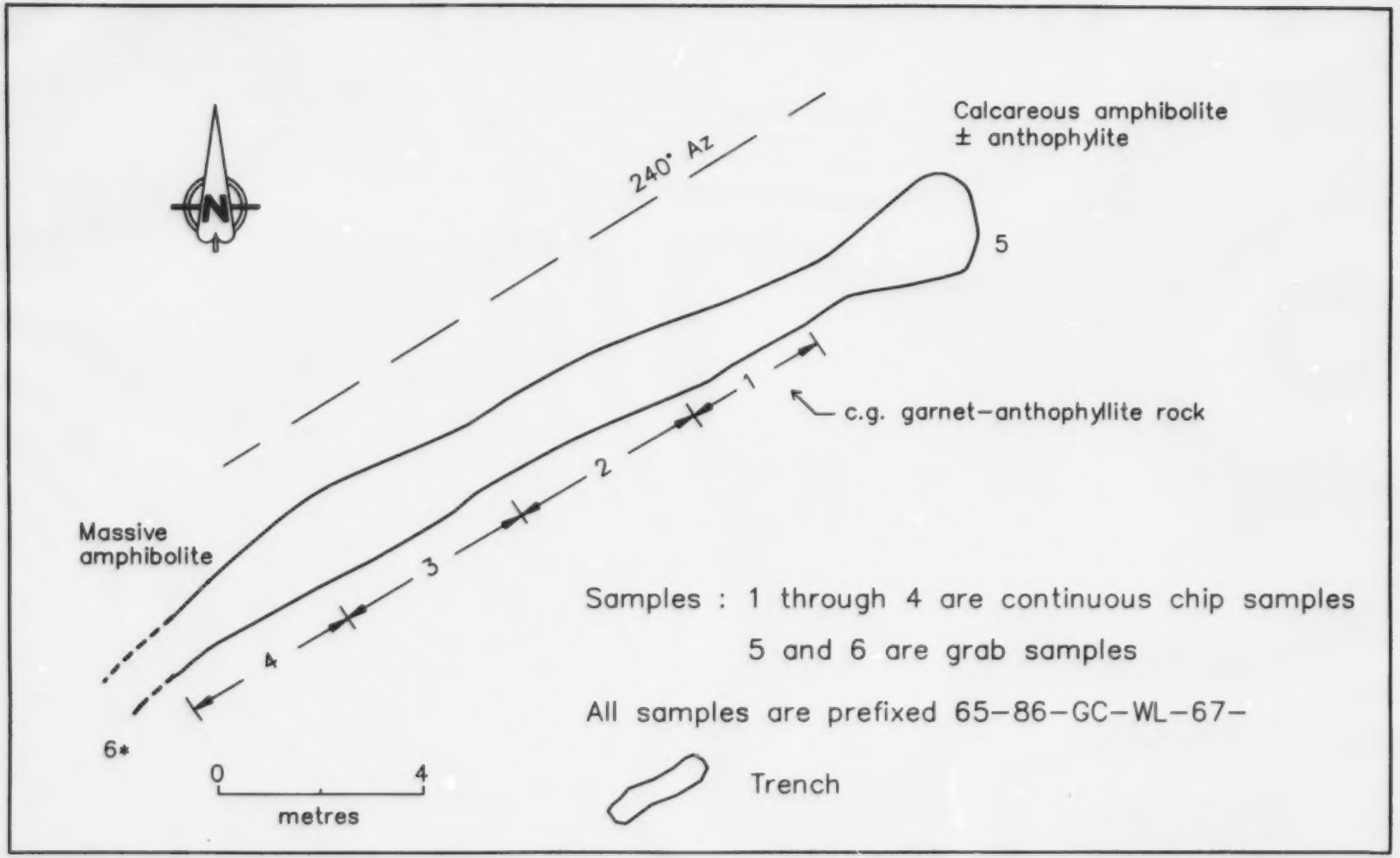


Figure 76-2: Trench map and sample locations from Site A (cf. Figure 76-1).

Wright, J.F.
1929: Kississing Lake area, Manitoba; In Geological Survey of Canada, Summary Report, 1928, Part B, p. 73B-104B.
1931: Geology and mineral deposits of part of northwest Manitoba; In Geological Survey of Canada, Summary Report, 1930, Part C, p. 1-124.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

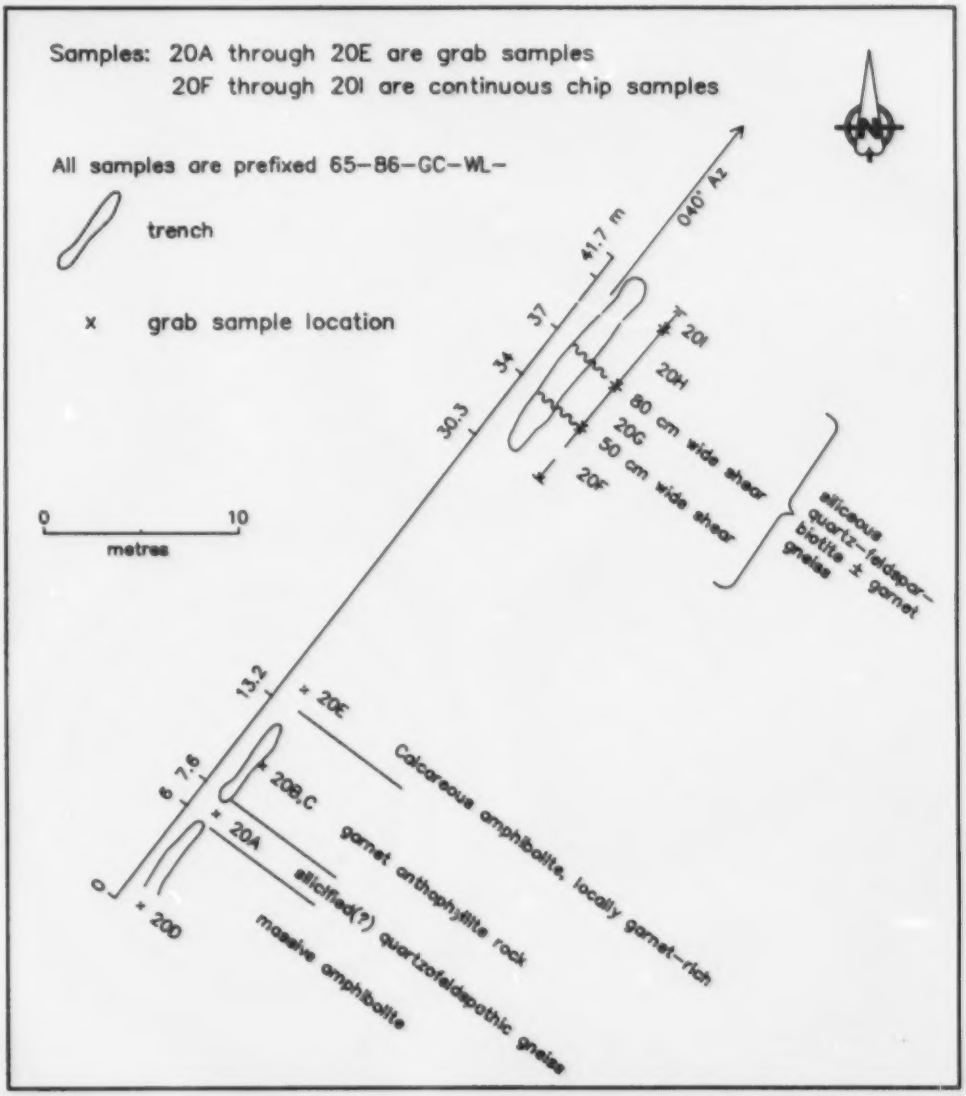


Figure 76-3: Trench map and sample locations from Site B (cf. Figure 76-1).

LOCATION: 77

NAME:

UTM: 6112282N/381976E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: 2 km south of Walton Lake (Fig. 73-1).

AIRPHOTO: A26326-234

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1926. The occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Elken Exploration Ltd. in 1979 (A.F. 91695, 92921). The occurrence was examined by Zwanzig *et al.* (1988).

GEOLOGICAL SETTING:

The area is underlain by biotite-garnet-feldspar-quartz gneiss ± sillimanite of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 73-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented (Zwanzig *et al.*, 1988).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 78

NAME: Bing and Peace River Groups

UTM: 6117050N/384382E

ACCESS: By logging road from Sherridon, Manitoba to Walton Lake, and traverse; or Bush aircraft to Walton Lake, and traverse.

AREA: 1.5 km east of Walton Lake.

AIRPHOTO: A26326-38

EXPLORATION SUMMARY:

This occurrence, known as the Bing and Peace River Groups (Wright, 1931), has been staked intermittently since 1928. Robertson (1948, 1953) examined the occurrence in 1947. HBED performed a loop-frame EM survey during the winter of 1957-58 that located anomalies on claims FIN 408, 419, 474-476 and 485-482 (A.F. 91598). DDH F32, F34 and F36 were drilled (total length 284 m) in 1958-59 to test anomalies on claims FIN 474, 475 and 482 (A.F. 91598). The area around the occurrence has been included in airborne EM and magnetometer surveys by Sherritt Gordon Mines Ltd. in 1972 and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513).

GEOLOGICAL SETTING:

According to Zwanzig *et al.* (1988), the area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Fig. 78-1). Wright (1931) noted garnetiferous bedded quartzite, quartz-mica gneiss and dark grey to black micaceous and hornblendic gneiss in the area. On the Peace River Group abundant black tourmaline was observed adjacent to pegmatite dikes. All drill holes intersected a layered sequence of quartz-biotite-garnet ± graphite ± hornblende ± carbonate gneiss, quartz-plagioclase-biotite ± garnet ± hornblende ± graphite gneiss and quartz-carbonate ± garnet ± graphite gneiss. In addition, hornblende-plagioclase gneiss was intersected in DDH F32 and F34, and gneissic quartzite was intersected in DDH F36.

MINERALIZATION:

On the Bing claim group Wright (1931) observed local concentrations of disseminated graphite and/or pyrrhotite ± chalcopyrite in the trenches. He also examined trenches that expose disseminated pyrrhotite and chalcopyrite mineralization over widths of 3 to 4.5 m within black, coarse grained mica-hornblende-garnet gneiss on the Peace River Group. Trace to minor amounts of disseminated graphite, pyrrhotite and/or pyrite was observed locally in the drill core.

GEOCHEMICAL DATA:

Wright (1931) reported that a channel sample from one of the trenches on the Peace River Group was assayed and contained '0.2% tin; 0.10% copper; 1.7 ounces of silver; and a trace of gold and lead'.

CLASSIFICATION:

Disseminated mineralization - not classified. The geographic position of the Bing and Peace River claims sketched on the old claim maps occurs east, northeast and southeast of the location indicated by Robertson (1953).

REFERENCES:

Assessment Files 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Robertson, D.S.
1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Wright, J. F.
1931: Geology and mineral deposits of part of northwest Manitoba; In Geological Survey of Canada, Summary Report, 1930, Part C, p. 1-124.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

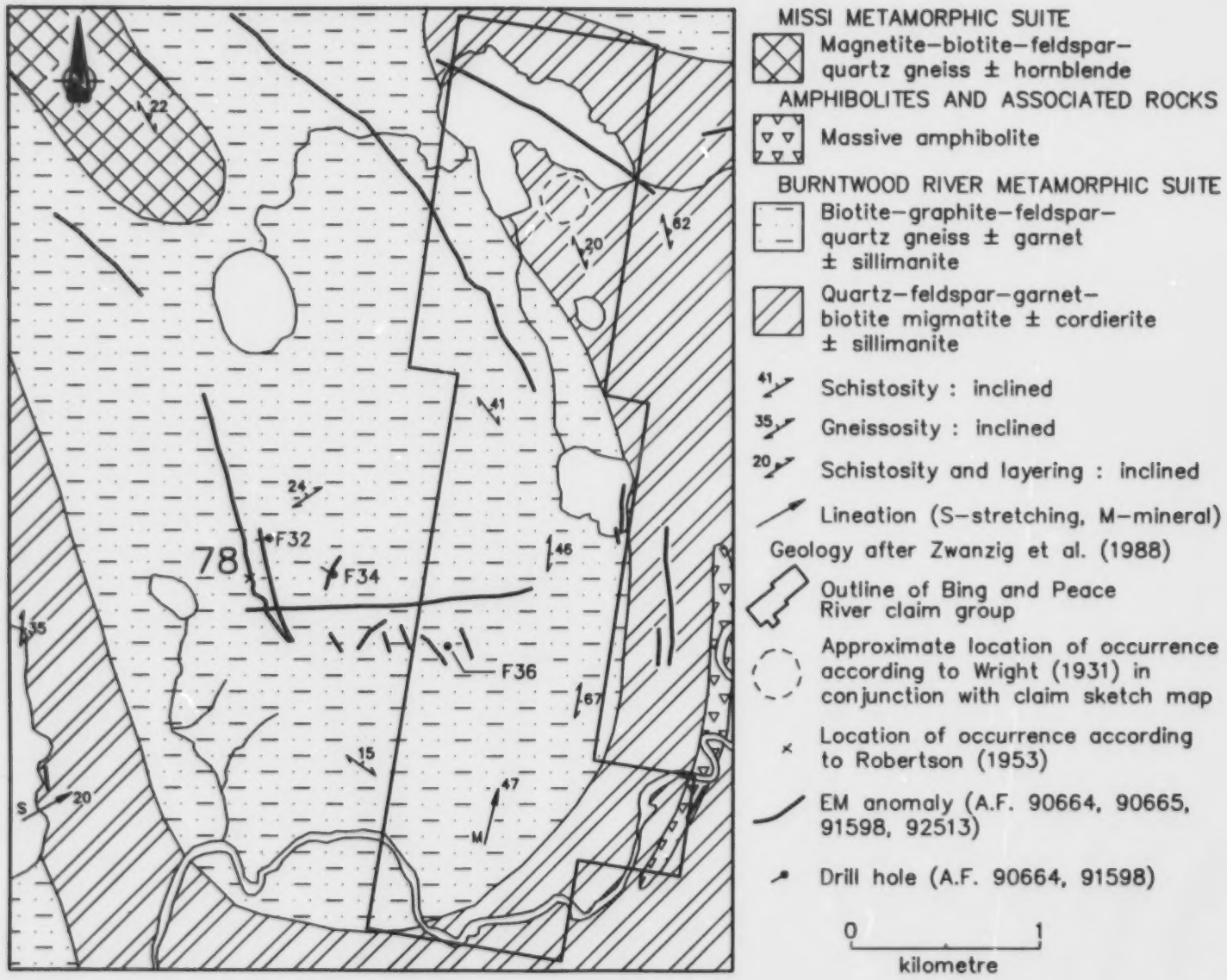


Figure 78-1: General geology, geophysical anomalies and drill hole locations at occurrence 78.

LOCATION: 79

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6118941N/383469E

ACCESS: By logging road from Sherridon, Manitoba to Walton Lake, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: 1 km northeast of Walton Lake.

AIRPHOTO: A26326-134

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1957. HBED performed a loop-frame EM survey during the winter of 1957-58 that defined an anomaly on claims GAM 28, 29, 30 (A.F. 90664, 90665, 91598). DDH G1 was drilled (length 48 m) in 1959 (A.F. 90664). The area was included in airborne EM and magnetometer surveys performed for Sherritt Gordon Mines Ltd. in 1972 and for Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 79-1). DDH G1 intersected quartz-plagioclase-biotite-garnet ± graphite ± carbonate gneiss, hornblende-plagioclase gneiss and biotite-chlorite-graphite ± carbonate schist.

MINERALIZATION:

Minor amounts of disseminated pyrite were observed locally within the 4 m thick biotite-chlorite-graphite ± carbonate schist.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. The presence of chlorite within high grade metamorphic rocks of the Kisseynew gneiss belt can indicate retrograde metamorphism associated with shears and/or faults.

REFERENCES:

Assessment Files 90664, 90665, 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

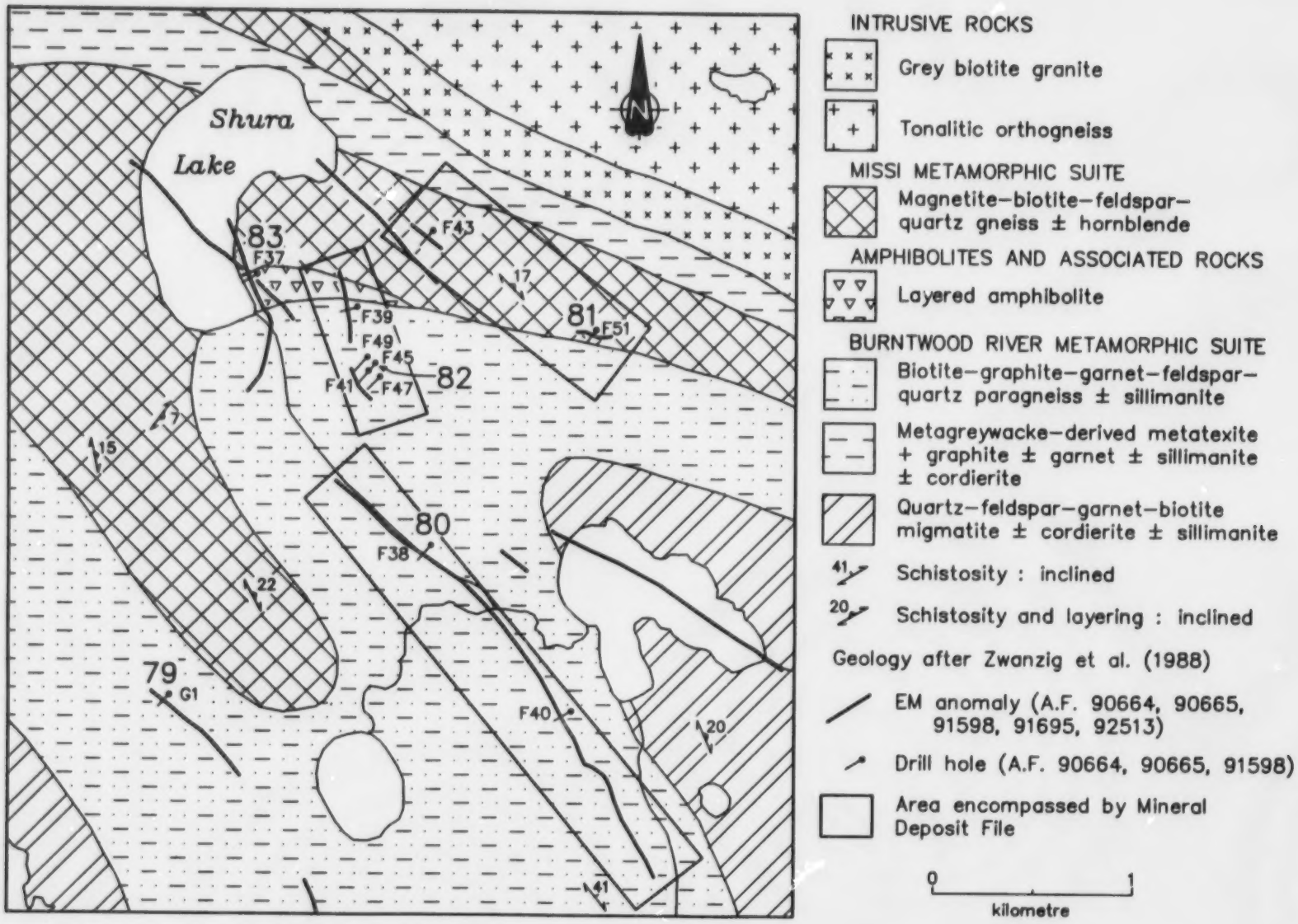


Figure 79-1: General geology, geophysical anomalies and drill hole locations at occurrences 79, 80, 81, 82 and 83.

LOCATION: 80

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6119636N/384751E

ACCESS: Bush aircraft (with difficulty) to Shura Lake, and traverse; or by logging road from Sherridon, Manitoba, along Limestone Creek, and traverse; or bush aircraft to Walton Lake, along Limestone Creek, and traverse.

AREA: 2 km southeast of Shura Lake (Fig. 79-1).

AIRPHOTO: A26326-37, 38

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 90664, 90665, 91598). DDH F38 and F40 were drilled (total length 122 m) in 1959 on claims FIN 288FR and FIN 350 to test a 2300 m long anomaly (A.F. 90664, 91598). The area around the occurrence has been included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 79-1). DDH F38 intersected quartz-biotite-garnet gneiss, quartz-plagioclase-hornblende ± garnet gneiss and carbonate gneiss ± chlorite ± biotite. DDH F40 intersected gneissic quartzite, quartz-plagioclase-hornblende ± biotite gneiss, 'altered gneiss' ± chlorite, carbonate, talc and/or graphite, and quartz-plagioclase-biotite-garnet gneiss.

MINERALIZATION:

Trace amounts of disseminated pyrite were observed over the initial 30 m of core (DDH F38) hosted by, in descending order, quartz-biotite-garnet ± chlorite gneiss, quartz-plagioclase-hornblende ± garnet gneiss and carbonate gneiss ± chlorite ± biotite. In addition, trace amounts of chalcopyrite were observed within the quartz-plagioclase-hornblende gneiss and trace amounts of graphite were recognized in the carbonate gneiss. Pyrite grains were observed locally in drill core from DDH F40.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. Both the disseminated iron sulphide mineralization and local concentrations of chlorite are restricted to the first 30 m of core. The presence of chlorite within high grade metamorphic rocks of the Kisseynew gneiss belt can indicate either a retrograde metamorphic reaction, like that commonly associated with shears and/or faults, or a pre-metamorphic high magnesian content within the rock, as is generated during Fe-Mg metasomatism that is commonly associated with massive sulphide deposit type mineralization.

REFERENCES:

Assessment Files 90664, 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 81

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6120714N/385635E

ACCESS: Bush aircraft (with difficulty) to Shura Lake, and traverse; or by logging road from Sherridon, Manitoba, along Limestone Creek, and traverse; or bush aircraft to Walton Lake, along Limestone Creek, and traverse.

AREA: 750 metres southeast of Shura Lake (Fig. 79-1).

AIRPHOTO: A26326-36

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 90664, 91598). DDH F43 and F51 were drilled (total length 103 m) in 1958 on claims FIN 154 and FIN 213 respectively (A.F. 91598). The area around the occurrences was included in an airborne EM and magnetometer survey performed by Shell Canada Resources Ltd. in 1980 (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite paragneiss (Zwanzig *et al.*, 1988; Fig. 79-1). Both DDH intersected quartz-plagioclase-biotite ± garnet ± chlorite gneiss, gneissic quartzite and carbonate ± quartz ± chlorite gneiss.

MINERALIZATION:

The gneissic quartzite intersected in DDH F43 contains trace amounts of disseminated pyrite; trace amounts of disseminated graphite were observed within the 6.7 m thick carbonate gneiss unit. In DDH F51 two intersections, 48 cm and 2.7 m long, of quartz-carbonate gneiss with trace to minor amounts of disseminated pyrite and graphite are present.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90664, 91598, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 82

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6120529N/384477E

ACCESS: Bush aircraft (with difficulty) to Shura Lake, and traverse; or by logging road from Sherridon, Manitoba, along Limestone Creek, and traverse; or bush aircraft to Walton Lake, along Limestone Creek, and traverse.

AREA: 750 metres southeast of Shura Lake (Fig. 79-1).

AIRPHOTO: A26326-36

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. HBED performed a loop-frame EM survey during the winter of 1957-58 that located anomalies on claims FIN 210 and 221 (A.F. 90664, 91598). DDH F39, F41, F45, F47 and F49 were drilled (total length 409 m) in 1958 (A.F. 90664). An airborne EM and magnetometer survey performed in 1980 by Shell Canada Resources Ltd., included the area around the occurrence (A.F. 92513)

GEOLOGICAL SETTING:

The area is underlain by Missi Metamorphic Suite quartzofeldspathic gneiss, amphibolite and Burntwood Metamorphic Suite biotite-graphite-garnet-feldspar-quartz paragneiss (Zwanzig *et al.*, 1988; Fig. 79-1). A similar gross stratigraphy, recognized in the drill holes, comprises, in descending order: 1) relatively sulphide-free gneissic quartzite/granite gneiss; 2) granitic-pegmatitic gneiss which hosts the polymetallic disseminated sulphide mineralization; 3) 'altered' granite gneiss ± muscovite (sericite?) ± chlorite ± carbonate and disseminated iron sulphides; and 4) quartz-plagioclase-biotite ± graphite gneiss ± disseminated iron sulphide minerals.

MINERALIZATION:

The DDH intersected up to 13 m (DDH F45) of disseminated pyrrhotite, pyrite, chalcopyrite ± sphalerite mineralization within granitic-pegmatitic gneiss units. Trace amounts of disseminated iron sulphide and/or graphite were observed locally throughout the core.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. The down hole transition from nonmineralized gneissic quartzite (meta-chert?) to polymetallic disseminated sulphide mineralization to altered gneiss with disseminated iron sulphide, chlorite, carbonate and muscovite is suggestive of alteration that is commonly associated with massive sulphide type deposits.

REFERENCES:

Assessment Files 90664, 91598, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 83

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6121048N/383922E

ACCESS: Bush aircraft (with difficulty) to Shura Lake, and traverse; or by logging road from Sherridon, Manitoba, along Limestone Creek, and traverse; or bush aircraft to Walton Lake, and traverse.

AREA: East shore of Shura Lake (Fig. 79-1).

AIRPHOTO: A26326-36, 136

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1957. HBED performed a loop-frame EM survey during the winter of 1957-58 that defined an anomaly on claims FIN 156 and 209 (A.F. 90664, 91598). DDH F37 was drilled (length 52 m) in 1958 (A.F. 91598). The area around the occurrence has been included in airborne EM and magnetometer surveys, performed by Sherritt Gordon Mines Ltd. in 1972 and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513).

GEOLOGICAL SETTING:

The area is underlain by a wedge of layered or massive amphibolite and/or intermediate gneiss between Missi Metamorphic Suite intermediate feldspar-quartz ± biotite ± hornblende ± magnetite ± muscovite paragneiss and Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 79-1). DDH F37 intersected quartz-biotite-garnet gneiss, quartz-hornblende gneiss, hornblende-plagioclase gneiss and carbonate-graphite gneiss/schist.

MINERALIZATION:

Trace amounts of graphite were observed within 'altered' quartz-biotite gneiss with carbonate and chlorite. The hornblende-plagioclase gneiss contains trace amounts of pyrrhotite mineralization and trace amounts of disseminated pyrite was noted within a 5.5 m wide carbonate-graphite schist.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90664, 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 84

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6116487N/390223E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Batty Lake or Hayhurst Lake, and traverse.

AREA: 1 km southwest of Hayhurst Lake.

AIRPHOTO: A26325-137, 138, 139, 140, A26369-20, 21, 22

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). DDH 3, 4 and 6-12 were drilled in 1957 on claims NOR 117, NOR 150, TAB 6, TAB 7, TAB 7, TAB 8, TAB 8, TAB 119 and TAB 90 respectively (A.F. 90651, 90652). The area around the occurrence was included in an airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd., who did prospecting in the area later that year (A.F. 92513). Portions of the area in the vicinity of the occurrence (C.B. 2985 since 1971) are held by HBED.

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss and a unit of amphibolite ± garnet ± diopside ± calcite and hornblende-plagioclase gneiss (Zwanzig *et al.*, 1988; Fig. 84-1). The drill holes intersected an interlayered sequence of quartz-plagioclase-biotite-garnet ± graphite gneiss, argillite ± graphite ± carbonate, graphitic schist and hornblende-plagioclase gneiss. Other rock types were noted locally, i.e., a 2.5 m thick anthophyllite band was intersected in DDH 12 and hornblendite was recorded in DDH 9. Carbonate occurs locally throughout the drill core.

MINERALIZATION:

The bulk of the sulphide mineralization occurs within the graphitic argillite and graphitic schist layers. The graphitic schist layers range from 30 cm to 17 m in core length and locally contain irregular lenses of pyrite and up to 2 m wide zones of 30% or less pyrite stringers ± pyrite disseminations. The argillite layers range from a meter or less to 28 m in core length. Up to 30% iron sulphide mineralization was observed from a few centimeters to meters in core length within the argillite and graphitic argillite layers. The iron sulphide mineralization occurs predominantly as pyrite stringers with subordinate disseminated pyrite ± pyrrhotite. Up to a few per cent disseminated iron sulphide mineralization is common locally throughout the core. Trace amounts of disseminated chalcopyrite within graphitic argillite were noted in DDH 11.

GEOCHEMICAL DATA:

Core samples from the mineralized argillite and schist units were assayed for Au and Cu and selectively for Ni. Nil to low Au concentrations (0.34 and 0.17 g/t Au over 2.7 and 2.1 m, respectively - DDH 6) were reported. Ubiquitous low Cu concentrations, up to 0.08% (e.g. in graphitic argillite-DDH 10), occur throughout the drill core.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. Although only graphite may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980). The preponderance of stringers and lenses of iron sulphide restricted to layers probably indicates an *in situ* (stratabound) partial mobilization and recrystallization of an original sulphide component.

REFERENCES:

Assessment Files 90650, 90651, 90652, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

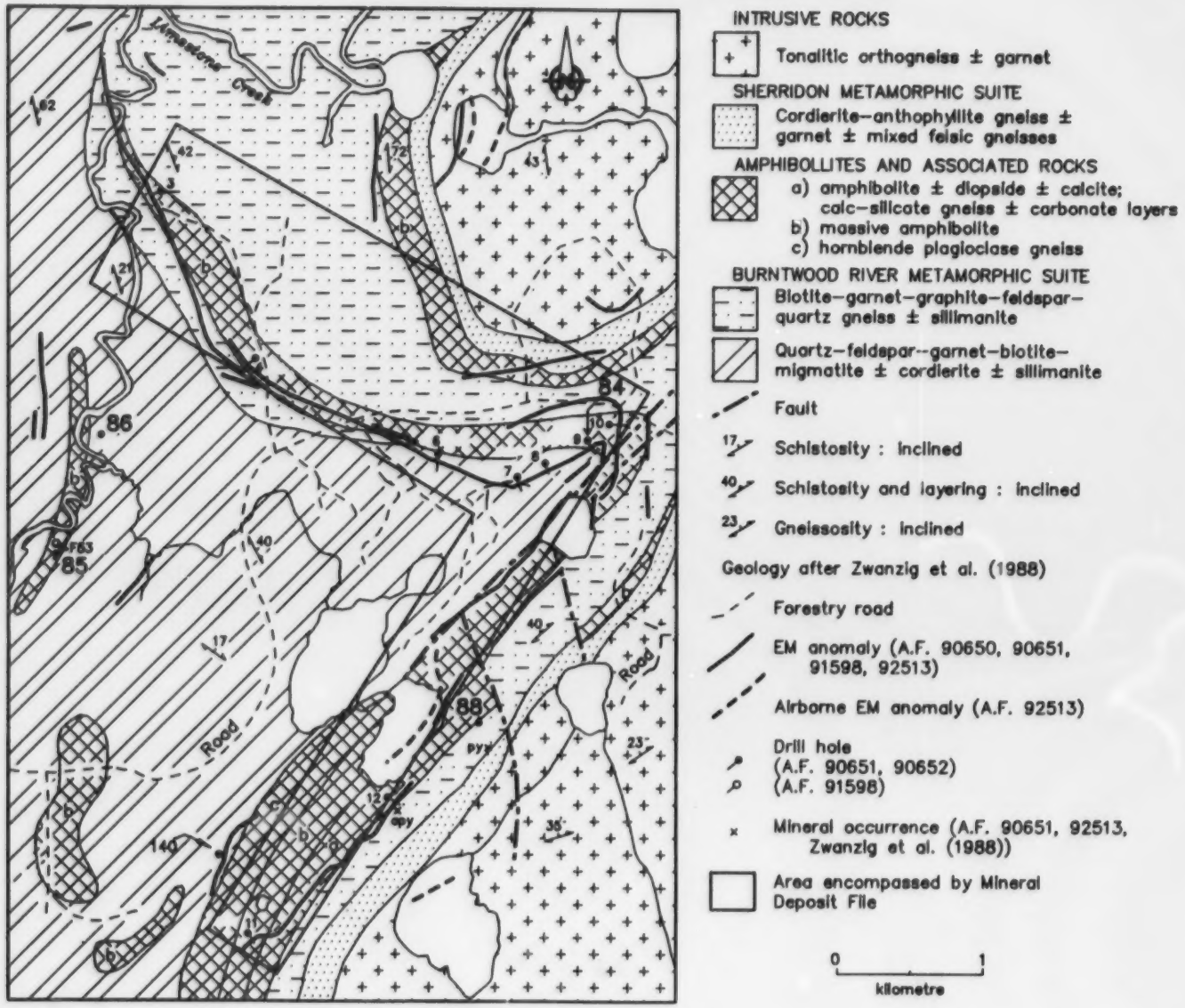


Figure 84-1: General geology, geophysical anomalies and drill hole locations at occurrences 84, 85, 86 and 88.

LOCATION: 85

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6115842N/386857E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake, 6 km along Limestone Creek, and traverse.

AREA: 3.5 km east of south end of Walton Lake (Fig. 84-1).

AIRPHOTO: A26325-138

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1957. Geological and loop-frame EM surveys were performed in 1956 and 1957 near the occurrence by Britannia Mining and Smelting Co. Ltd., (A.F. 90650, 90651). HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 91598). DDH F53 was drilled (length 55 m) on claim FIN 547 in 1959 (A.F. 91598). The area around the occurrence was included in an airborne EM and magnetometer survey performed by Shell Canada Resources Ltd. in 1980 (A.F. 92513). In 1979, F. Guymer staked claim SHE 10616 that included the occurrence for HBED, the current (1989) holders.

GEOLOGICAL SETTING:

The area is underlain by amphibolite ± garnet ± diopside ± calcite and hornblende-plagioclase gneiss and Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 84-1). DDH F53 intersected quartz-biotite ± garnet ± chlorite ± carbonate gneiss and gneissic quartzite ± garnet ± carbonate gneiss.

MINERALIZATION:

Trace amounts of disseminated pyrite and graphite were observed locally in the drill core.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. The drill log describes an altered and/or sheared appearance in some drill core sections. The presence of chlorite within high grade metamorphic rocks of the Kisseynew gneiss belt can indicate retrograde metamorphism associated with shears and/or faults.

REFERENCES:

Assessment Files 90650, 90651, 91598, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 86

NAME:

UTM: 6116545N/386967E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton or Hayhurst Lakes, along Limestone Creek, and traverse.

AREA: 3.5 km east of Walton Lake (Fig. 84-1).

AIRPHOTO: A26325-140

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513).

GEOLOGICAL SETTING:

The locality is near the contact of an amphibolite with quartz-feldspar-garnet-biotite migmatite ± cordierite ± sillimanite of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 84-1). The mineralization is enclosed in diorite-derived mafic gneiss (A.F. 90651).

MINERALIZATION:

Trace amounts of pyrrhotite were reported to occur within a diorite gneiss by Britannia (A.F. 90651).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 87

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6118559N/388785E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Hayhurst Lake, along Limestone Creek, and traverse.

AREA: 2 km west of Hayhurst Lake.

AIRPHOTO: A26369-20

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Company Limited in the area (A.F. 90650, 90651). DDH 1 was drilled (length 75 m) in 1959 (A.F. 90651, 90652). The area around the occurrence was included in an airborne EM and magnetometer survey performed for Shell Canada Resources Ltd. in 1980 (A.F. 92513).

GEOLOGICAL SETTING:

The occurrence is hosted by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss near its contact with a unit of amphibolite ± garnet ± diopside ± calcite and hornblende-plagioclase gneiss (Zwanzig *et al.*, 1988; Fig. 87-1). The drill hole intersected, in descending order, quartz-plagioclase-biotite ± garnet (greywacke) gneiss, a sulphide layer, carbonate rock and hornblende-plagioclase gneiss ± very coarse grained garnets.

MINERALIZATION:

Up to 70% pyrrhotite and trace amounts of graphite and chalcopyrite occur within the 1.4 m thick sulphide layer. The carbonate layer contains less than 1% very fine grained pyrrhotite.

GEOCHEMICAL DATA:

A core sample from the sulphide layer was assayed and contained 0.02% Ni.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 90650, 90651, 90652, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

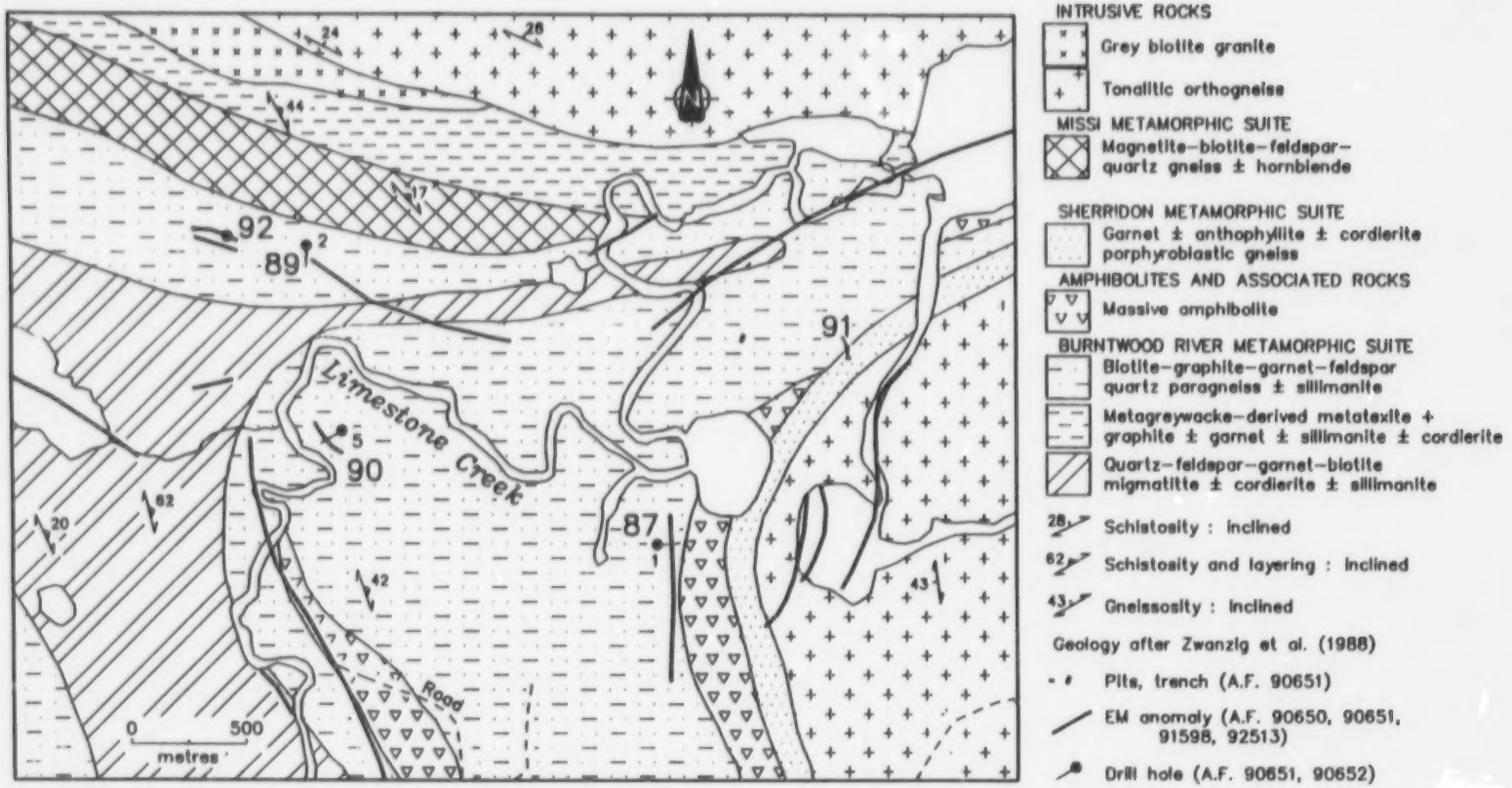


Figure 87-1: General geology, geophysical anomalies, trench locations and drill hole locations at occurrences 87, 89, 90, 91 and 92.

LOCATION: 83

NAME:

UTM: 6114635N/389470E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Batty Lake, and traverse.

AREA: 2 km northwest of Batty Lake.

AIRPHOTO: A26369-23

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 by Shell Canada Resources Ltd. was followed later that year by geologic prospecting in the area (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by biotite-garnet-feldspar-quartz gneiss ± sillimanite of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 88-1). Ostry (1989) describes the host rock as a medium grained, quartz-rich, quartz-feldspar-biotite gneiss ± garnet ± magnetite resembling a tonalitic orthogneiss.

MINERALIZATION:

Minor amounts of disseminated pyrite were documented at two sites (Zwanzig *et al.*, 1988). Ostry (1989) observed local rusty weathered areas of outcrop that contain trace amounts of pyrrhotite and/or pyrite in the area.

GEOCHEMICAL DATA:

The results of a geochemical analysis of grab sample 65-89-BAT-23A are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

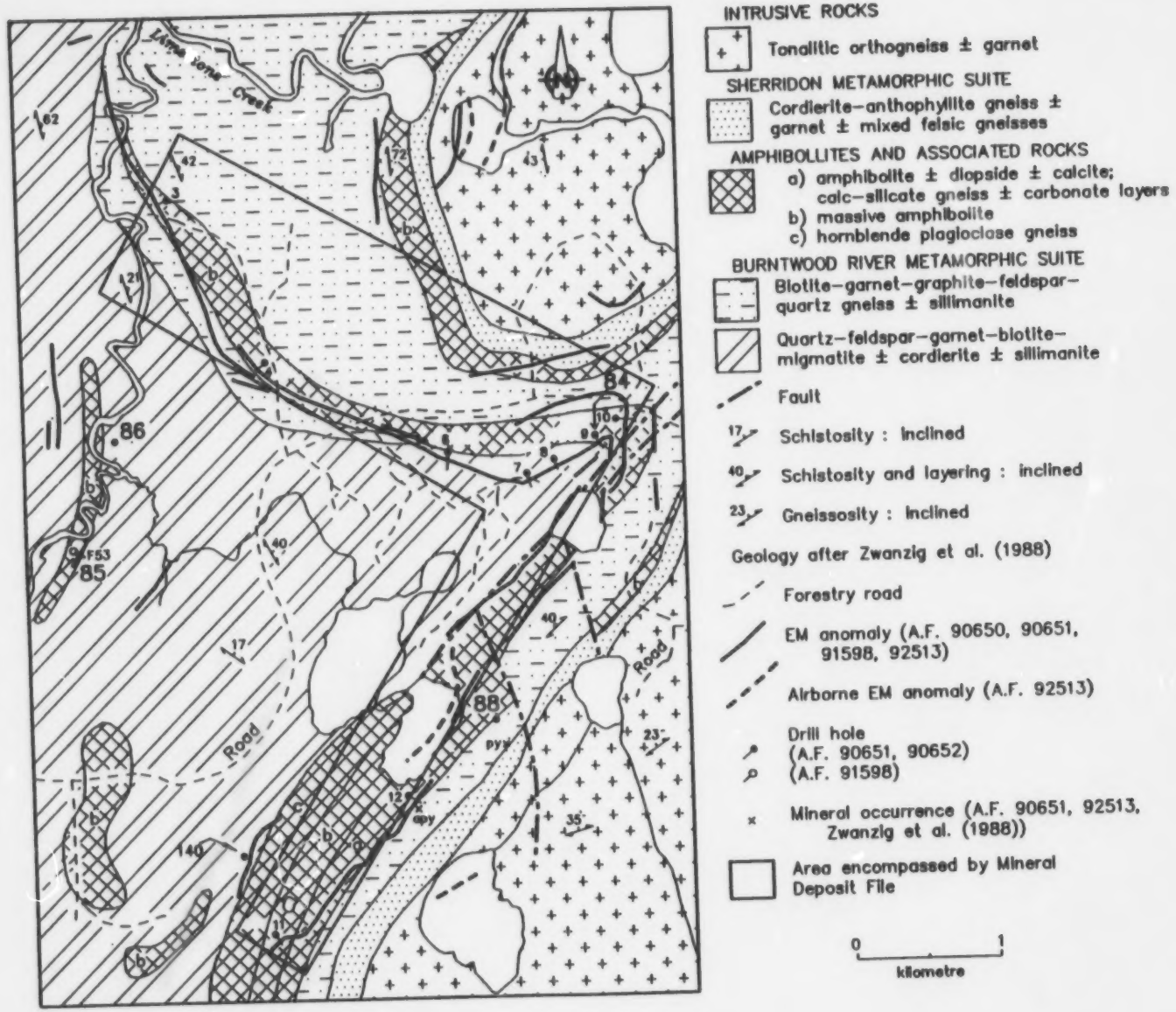


Figure 88-1: General geology, geophysical anomalies and drill hole locations at occurrences 84, 85, 86 and 88.

LOCATION: 89

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6119935N/387326E

ACCESS: By logging road from Sherridon, Manitoba to Walton Lake, and traverse; or bush aircraft to Walton Lake or Hayhurst Lake, along Limestone Creek, and traverse.

AREA: 3.5 km northwest of Hayhurst Lake.

AIRPHOTO: A26325-141

EXPLORATION SUMMARY:

Robertson (1948, 1953) examined the area in 1947. The area around the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 (A.F. 90650, 90651). DDH 2 was drilled (length 64 m) on claim NOR 51 in 1959 (A.F. 90651, 90652). HBED performed a loop-frame EM survey during the winter of 1957-58 on claim FIN 216 (A.F. 91598). The area was included in an airborne EM and magnetometer survey performed for Shell Canada Resources Ltd. in 1980 (A.F. 92513).

GEOLOGICAL SETTING:

The occurrence is hosted by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss near its contact with: 1) a unit of amphibolite ± garnet ± diopside ± calcite and hornblende-plagioclase gneiss (Zwanzig *et al.*, 1988; Fig. 89-1); or 2) Sherridon Group quartzofeldspathic gneiss (Robertson ,1953). DDH 2 intersected, in descending order, quartz-biotite-plagioclase-garnet (greywacke) gneiss, graphitic argillite, graphitic schist (7 m in core length), plagioclase-hornblende gneiss and quartz-rich, quartz-biotite-plagioclase gneiss. The schist unit probably marks the boundary of the greywacke gneiss.

MINERALIZATION:

The argillite layers contain trace to minor amounts of disseminated pyrite and/or graphite.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 90652, 91598, 92513 Manitoba Energy and Mines, Minerals Division.

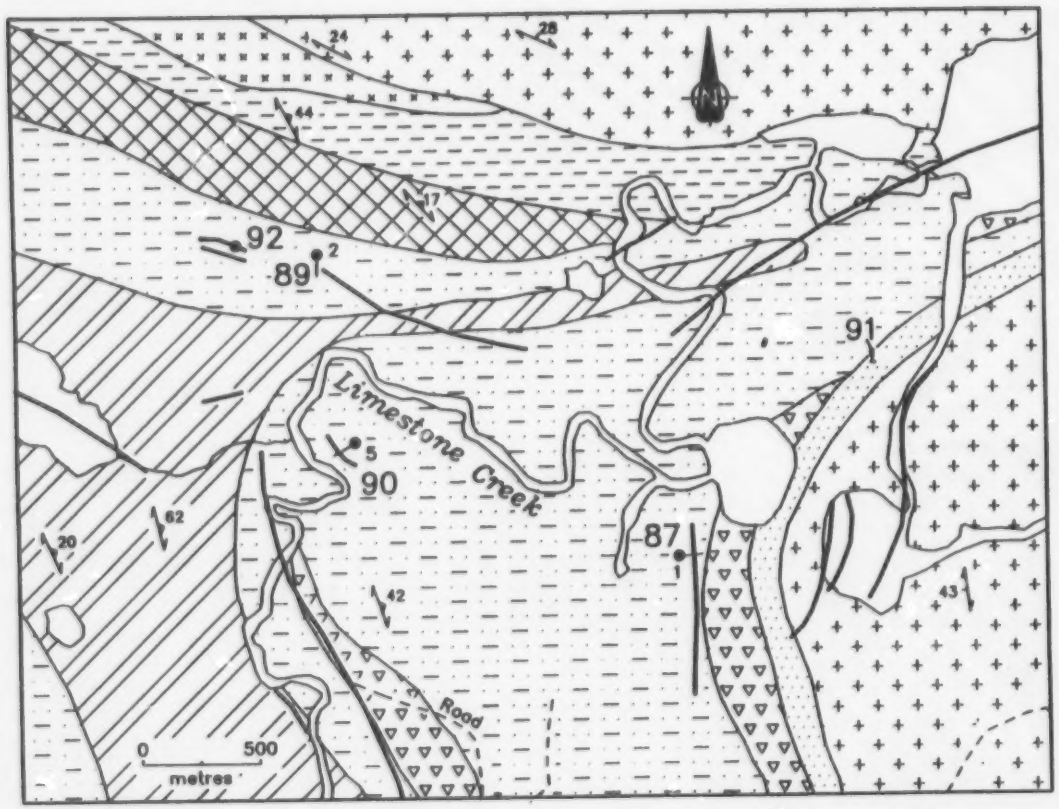
Robertson, D.S.

1948: Nokomis Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 48-8, 1:31 680.

1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.

1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.



INTRUSIVE ROCKS

Grey biotite granite

Tonalitic orthogneiss

MISSI METAMORPHIC SUITE

Magnetite–biotite–feldspar–quartz gneiss ± hornblende

SHERRIDON METAMORPHIC SUITE

Garnet ± anthophyllite ± cordierite porphyroblastic gneiss

AMPHIBOLITES AND ASSOCIATED ROCKS

Massive amphibolite

BURNTWOOD RIVER METAMORPHIC SUITE

Biotite–graphite–garnet–feldspar quartz paragneiss ± sillimanite

Metagreywacke–derived metatexite + graphite ± garnet ± sillimanite ± cordierite

Quartz–feldspar–garnet–biotite migmatite ± cordierite ± sillimanite

28 Schistosity : inclined

62 Schistosity and layering : inclined

43 Gneissosity : inclined

Geology after Zwanzig et al. (1988)

Pits, trench (A.F. 90651)

EM anomaly (A.F. 90650, 90651, 91598, 92513)

Drill hole (A.F. 90651, 90652)

Figure 89-1: General geology, geophysical anomalies, trench locations and drill hole locations at occurrences 87, 89, 90, 91 and 92.

LOCATION: 90

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6119098N/387410E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Walton Lake or Hayhurst Lake, along Limestone Creek, and traverse.

AREA: 3.5 km west of Hayhurst Lake (Fig. 89-1).

AIRPHOTO: A26325-141

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Company Limited in the area (A.F. 90650, 90651). DDH 5 was drilled (length 75 m) on claim NOR 59 in 1959 (A.F. 90651, 90652). HBED performed a loop-frame EM survey on claim FIN 283 (A.F. 91598) during the winter of 1957-58. The area around the occurrence was included in an airborne EM and magnetometer survey performed for Shell Canada Resources Ltd. in 1980 (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 89-1). The drill hole intersected quartz-plagioclase-biotite-garnet gneiss and graphitic argillite.

MINERALIZATION:

A 3 m thick quartz-biotite gneiss layer within the graphitic argillite contains carbonate stringers, trace amounts of graphite and up to 10% disseminated pyrrhotite ± pyrite. Elsewhere in the core, less than 1% iron sulphide was observed locally.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 90652, 91598, 92513 Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 91

NAME:

UTM: 6119277N/389533E

ACCESS: Bush aircraft to Hayhurst Lake, 1.8 km along creek to Stefanuik Lake, and traverse.

AREA: 1.5 km northwest of Hayhurst Lake (Fig. 89-1).

AIRPHOTO: A26369-19

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 by Shell Canada Resources Ltd., included the area around the occurrence (A.F. 91513).

GEOLOGICAL SETTING:

The area (Fig. 89-1) is underlain by graphitic, biotite-feldspar-quartz paragneiss ± garnet of the Burntwood River Metamorphic Suite, anthophyllite-cordierite-garnet gneiss of the Sherridon Metamorphic Suite and tonalitic orthogneiss (Zwanzig *et al.*, 1988).

MINERALIZATION:

Two trenches in the anthophyllite layer expose minor amounts of chalcopyrite and epidote in 'sheared' rock (A.F. 90651). Another trench, 430 metres west of the occurrence, contains rusty weathered quartz-plagioclase-biotite gneiss (A.F. 90651).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Replacement type deposit. The unusual mineralogy of the conformable anthophyllite sequence/layers may reflect: 1) the original chemistry of a chemical sedimentary precipitate, with or without mixing during sedimentation; 2) alteration by hydrothermal fluid flow along a structure such as a fault or shear zone and possible transposition; or 3) transposition of an Fe-Mg alteration zone like that commonly associated with massive sulphide type deposits (anthophyllite-bearing rocks exhibit a spatial association with the Sherridon East Cu-Zn massive sulphide deposit in NTS 63N/3).

REFERENCES:

Assessment Files 90650, 90651, 91513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 92

NAME: Walton River sulphide
UTM: 6119969N/386942E
ACCESS: Bush aircraft to Hayhurst Lake, along Limestone Creek, and traverse.

AREA: 4 km west of Hayhurst Lake (Fig. 89-1).
AIRPHOTO: A26325-142

EXPLORATION SUMMARY:

This occurrence, known as Walton River sulphide, has been staked intermittently since 1928 (Robertson, 1953). The area around the occurrence was included in a loop-frame EM survey performed during the winter of 1957-58 by HBED (A.F. 91598). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by biotite-garnet-feldspar-quartz gneiss ± sillimanite of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 89-1). According to Robertson (1953), the occurrence is hosted by garnetiferous, quartz-plagioclase-biotite (greywacke) gneiss in proximity to a calcareous amphibolite unit.

MINERALIZATION:

Robertson (1953) observed an 'elongate, heavily rusted lens of graphite and pyrrhotite' hosted by greywacke gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. Although only graphite may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980).

REFERENCES:

Assessment Files 91598, 92513
Manitoba Energy and Mines, Minerals Division.

Robertson, D.S.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

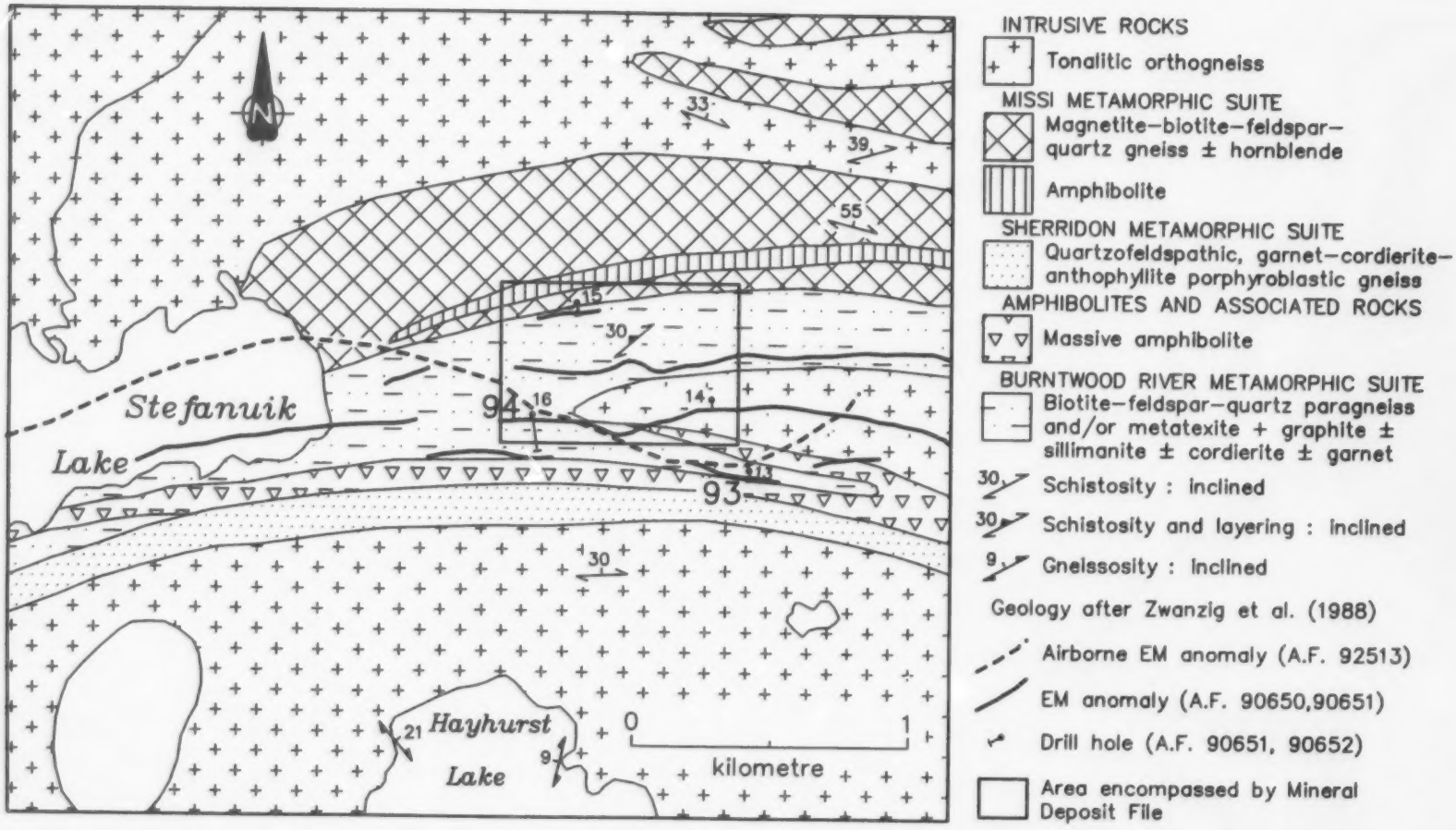


Figure 93-1: General geology, geophysical anomalies and drill hole locations at occurrences 93 and 94.

LOCATION: 93

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6120348N/392915E

ACCESS: Bush aircraft to Hayhurst Lake, and traverse.

AREA: 1.5 km north of Hayhurst Lake.

AIRPHOTO: A26365-51

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). DDH 13 was drilled (length 64 m) in 1957 on claim NOR 46 (A.F. 90652). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by biotite-garnet-feldspar-quartz gneiss ± sillimanite of the Burntwood River Metamorphic Suite and amphibolite (Zwanzig *et al.*, 1988; Fig. 93-1). The drill hole intersected greywacke gneiss and hornblende-plagioclase gneiss/amphibolite (A.F. 90652).

MINERALIZATION:

DDH No. 13 intersected 6.1 metres of hornblende-plagioclase gneiss/amphibolite that contains 4 to 20%, fine grained, disseminated pyrrhotite and 1 to 3%, fine grained, disseminated pyrite.

GEOCHEMICAL DATA:

A 2.14 metre long section of amphibolite that contains 20% pyrrhotite and 3% pyrite was assayed for Au and Ni. Anomalous concentrations were not reported (A.F. 90652).

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 90652, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 94

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6120550N/392040E

ACCESS: Bush aircraft to Hayhurst Lake, and traverse.

AREA: 1.5 km north of Hayhurst Lake (Fig. 93-1).

AIRPHOTO: A26365-51

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). DDH 14, 15 and 16 were drilled (total length 320 m) in 1957 on claims NOR 46, 45 and 44 respectively (A.F. 90652). An airborne EM and magnetometer survey performed in 1980 by Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513).

GEOLOGICAL SETTING:

The area (Fig. 93-1) is underlain by biotite-garnet-feldspar-quartz gneiss ± sillimanite of the Burntwood River Metamorphic Suite, magnetite-biotite-feldspar-quartz gneiss ± hornblende of the Missi Metamorphic Suite and amphibolite (Zwanzig *et al.*, 1988). The DDH intersected hornblende-plagioclase ± biotite gneiss, granitoid plagioclase-hornblende gneiss, graphitic schist and quartz-plagioclase-biotite-garnet gneiss. Bands of graphitic argillite were documented in DDH 15 and 16. A layer of garnet-biotite-plagioclase gneiss that contains approximately 50% garnet and a plagioclase-quartz-calcite gneiss (interpreted as a limy sedimentary rock) were observed down hole from and adjacent to the graphitic argillite in DDH 16.

MINERALIZATION:

DDH No. 14 intersected 10.7 metres of strongly foliated, 'altered' hornblende-plagioclase gneiss that contains 5 to 10% graphite flakes and 3% very thin stringers of pyrite. DDH No. 15 intersected 4.7 metres of hornblende-plagioclase gneiss that contains bands of graphite-rich material. A 0.9 metre long zone of possible fault gouge was also documented within the hornblende-plagioclase gneiss. DDH No. 16 intersected 30.5 metres of quartz-biotite gneiss that contains 'extensive' graphite and 1 to 25% brassy pyrite. An intersection of hornblende-plagioclase gneiss, 3 m in core length, contains 15 to 20% fine grained, disseminated pyrrhotite and pyrite was intersected deeper in the hole.

GEOCHEMICAL DATA:

A graphitic gneiss that contains 25% pyrite (DDH 16) was assayed for gold. The sulphide-bearing hornblende-plagioclase gneisses in DDH No. 16 were assayed for Au and Ni (A.F. 90652). Anomalous concentrations were not reported.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. Although only graphite may be recorded in the drill log, the majority of this type of occurrence has been found to contain more iron sulphide than carbon (Gale *et al.*, 1980). The two intersections of disseminated pyrrhotite and pyrite in hornblende-plagioclase gneiss in DDH No. 16 are characterized as disseminated mineralization, not classified.

REFERENCES:

Assessment Files 90650, 90651, 90652, 92513
Manitoba Energy and Mines, Minerals Division.

Gale, G.H.
1980: Mineral deposit studies-Flin Flon-Kisseynew; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1980, p. 51-64.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 95

NAME:

UTM: 6117616N/392668E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Hayhurst Lake.

AREA: Southeast shore of Hayhurst Lake

AIRPHOTO: A26365-49

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd., in the area (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 by Shell Canada Resources Ltd., included the occurrence (A.F. 92513). An HLEM survey performed by HBED in 1982 included the area around the occurrence (A.F. 92865).

GEOLOGICAL SETTING:

The area is underlain by tonalitic orthogneiss (Zwanzig *et al.*, 1988; Fig. 95-1).

MINERALIZATION:

A rusty weathered 7.6 metre wide zone that exhibits a well developed foliation contains pyrite, pyrrhotite and chlorite (A.F. 90651).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513, 92865
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

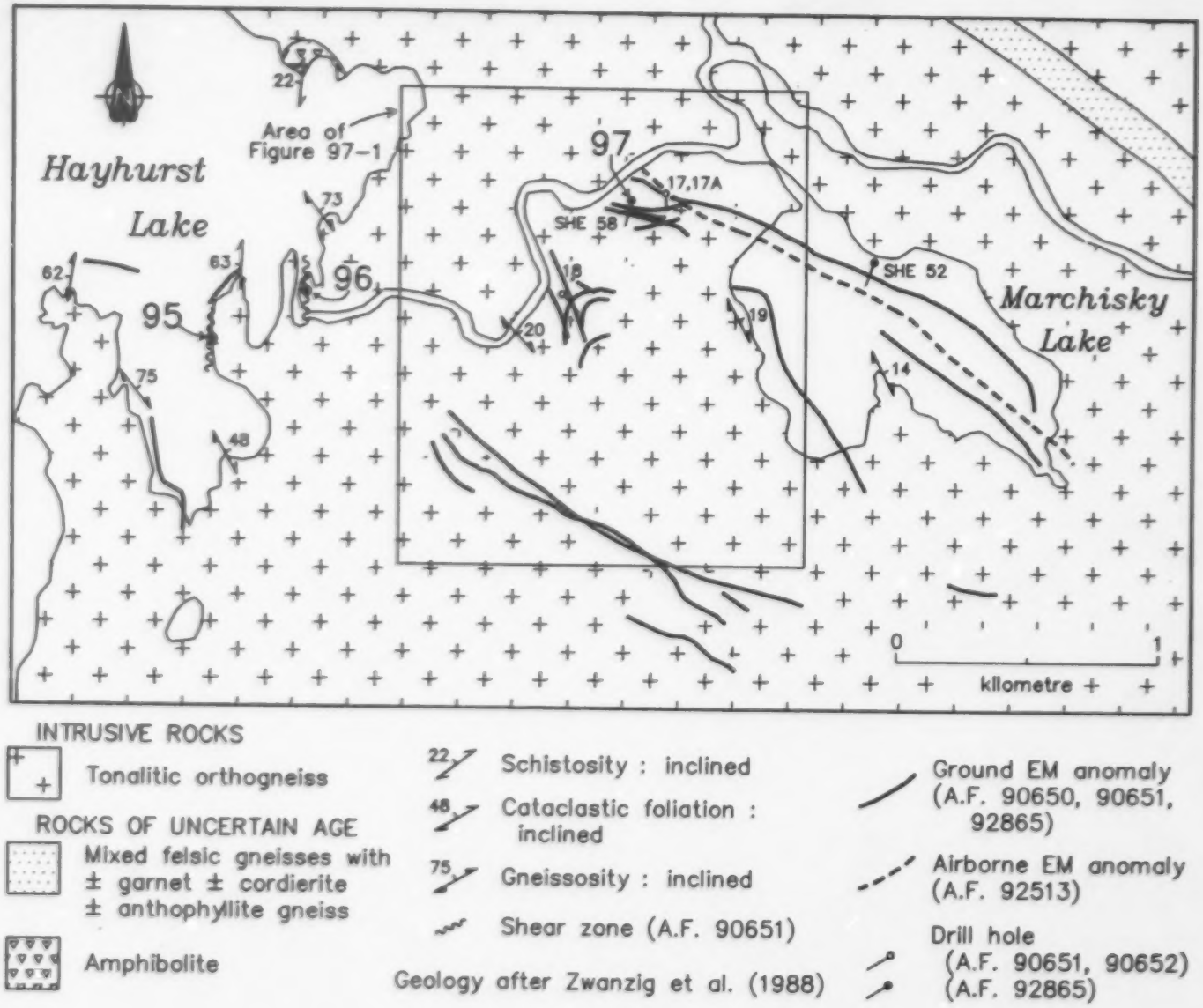


Figure 95-1: General geology, geophysical anomalies and drill hole locations at occurrences 95, 96 and 97.

LOCATION: 96

NAME:

UTM: 6117817N/393051E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Hayhurst Lake.

AREA: East shore of Hayhurst Lake (Fig. 95-1).

AIRPHOTO: A26365-49

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed in the area during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer performed in 1980 by Shell Canada Resources Ltd., included the area around the occurrence (A.F. 92513). An HLEM survey performed for HBED in 1982 included the occurrence (A.F 91865).

GEOLOGICAL SETTING:

The area is underlain by tonalitic orthogneiss (Zwanzig *et al.*, 1988; Fig. 95-1).

MINERALIZATION:

A 12.1 metre wide zone within fine grained, leucocratic quartz-feldspar-biotite-garnet gneiss that exhibits a well developed foliation, locally contains chlorite and pyrite (A.F. 90651).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513, 92865
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

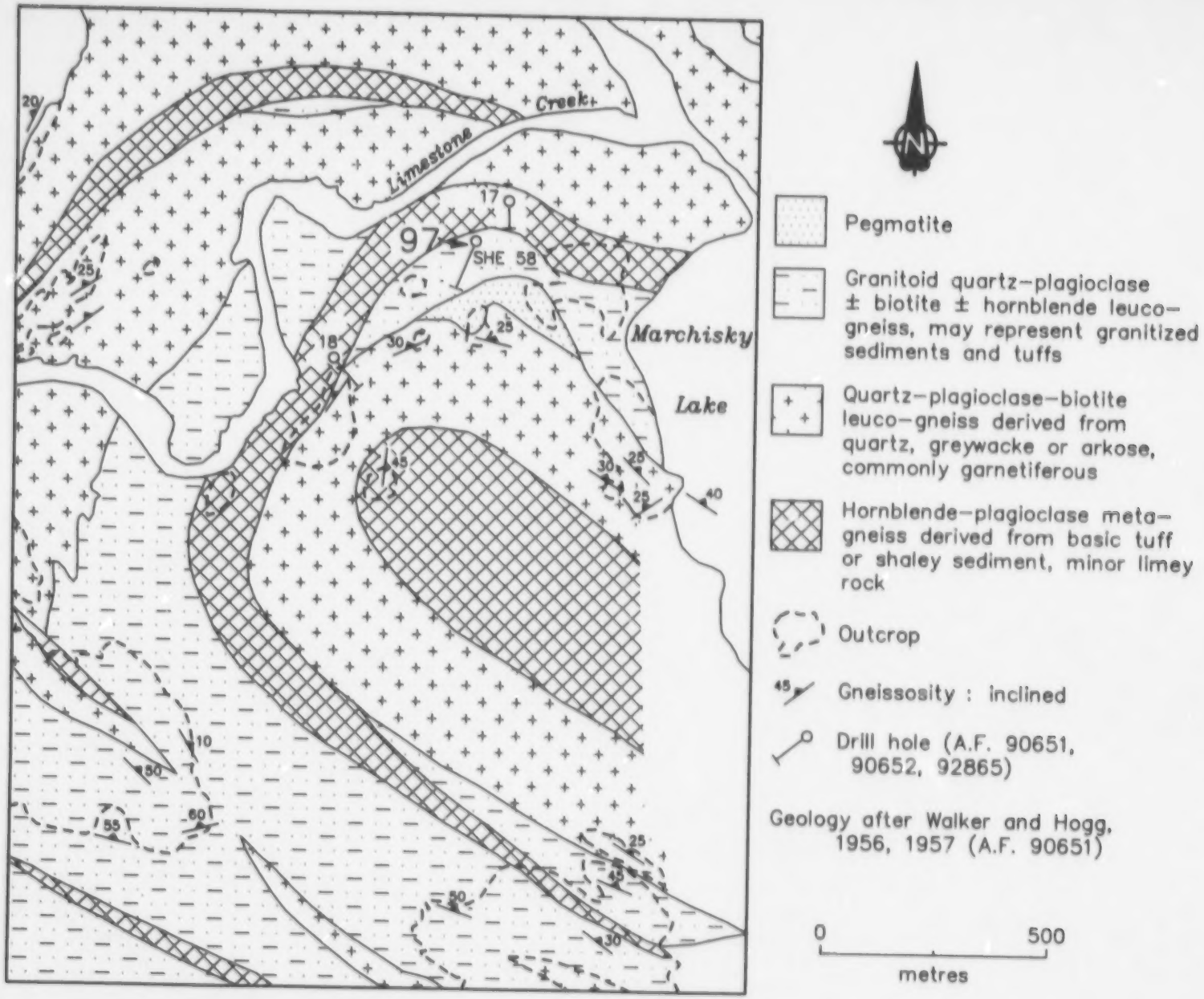


Figure 97-1: Detailed geology and drill hole locations in the vicinity of occurrence 97.

LOCATION: 97

NAME:

UTM: 6118136N/394281E

ACCESS: By logging road from Sherridon, Manitoba and traverse; or bush aircraft to Hayhurst Lake, along Limestone Creek and traverse.

AREA: 500 metres west of Marchisky Lake.

AIRPHOTO: A26365-146

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd., (A.F. 90650, 90651). DDH 17, 17A and 18 (total length 264 m) were drilled in 1957 on claims NOR 115 and 129 (A.F. 90651, 90652). The area around the occurrence was included in an airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd., who did geologic prospecting in the area later that year (A.F. 92513). A HLEM survey performed by HBED in 1982 included the occurrence (A.F. 92865). DDH SHE 58 (total length 90 m) and SHE 52 (log not available) were completed by HBED in 1984 (A.F. 92865).

GEOLOGICAL SETTING:

The area is underlain by felsic to intermediate intrusive rocks (Zwanzig *et al.*, 1988; Fig. 95-1). Robertson (1953) mapped what he termed Sherridon Group quartzofeldspathic gneiss in the area; these rocks included gneissic quartzite, arkose plus minor hornblende-plagioclase gneiss. Detailed mapping (1:9 600) in the area by Britannia Mining and Smelting Co. Ltd. (A.F. 90651) identified a sequence of quartz-plagioclase-biotite ± hornblende ± garnet leucogneiss (derived from quartzite, greywacke or arkose) with minor hornblende-plagioclase melagneiss interlayers and hornblende-plagioclase melagneiss (Fig. 97-1). DDH SHE 58 intersected quartz-feldspar-biotite-epidote gneiss and quartz-feldspar-biotite-hornblende-garnet gneiss. DDH 17, 17A and 18 intersected quartz-plagioclase-biotite ± garnet gneiss and hornblende-plagioclase gneiss.

MINERALIZATION:

An 8 m long section of core (DDH SHE 58) that contains up to 30% disseminated and stringer iron sulphide mineralization within quartz-feldspar-biotite-epidote gneiss also contains two near solid to solid pyrrhotite layers, 1.5 m and 30 cm in core length, with accessory pyrite ± chalcopyrite. The 1.5 m intersection consists of massive pyrrhotite that contains subround 'nodules' of pyrite rimmed by chlorite. Disseminated pyrite and trace amounts of pyrrhotite mineralization within quartz-feldspar-biotite-hornblende-garnet gneiss continues for 70 m to the end of the hole. Chloritic sections, epidote-rich bands, abundant garnet, sillimanite 'patches' and siliceous sections were observed locally down hole from the 8 m mineralized section. A 6.5 m thick section of up to 50% stringer disseminated iron sulphide mineralization associated with grey 'acid' gneiss was intersected in DDH 17. This mineralized zone occurs within a sequence of quartz-plagioclase-biotite ± garnet gneiss.

GEOCHEMICAL DATA:

Selected portions of the mineralized sections were assayed for Au, Ni and Cu in DDH 17. Low, up to 0.1%, Cu values were reported. The mineralized section in DDH SHE 58 was assayed for Au, Ag, Cu and Zn. Selected sections were also assayed for Pb and Ni. Low, up to 0.53%, Cu values were reported.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The presence of disseminated iron sulphide mineralization and local concentrations of chlorite, epidote, garnet, sillimanite and siliceous rock down hole from the near solid to solid sulphide layers in DDH SHE 58 is suggestive of alteration that is commonly associated with massive sulphide type deposits.

REFERENCES:

Assessment File 90650, 90651, 90652, 92513, 92865
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

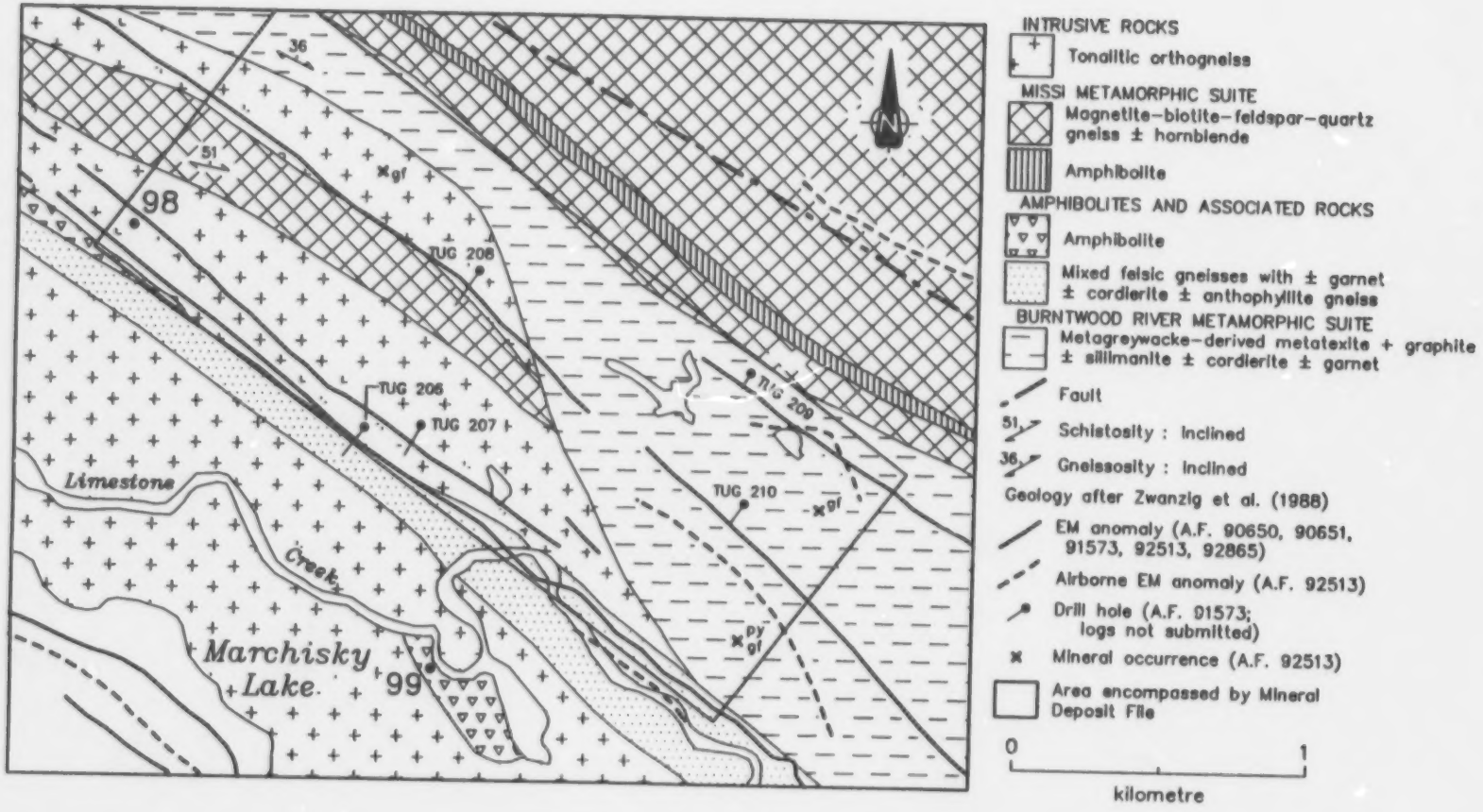


Figure 98-1: General geology, geophysical anomalies and drill hole locations at occurrences 98 and 99.

LOCATION: 98

NAME:

UTM: 6119232N/395369E

ACCESS: Bush aircraft to Hayhurst Lake or Limestone Point Lake, along Limestone Creek, and traverse.

AREA: 3 km east of Hayhurst Lake.

AIRPHOTO: A26368-148

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. A HLEM survey performed during the winter of 1959-60 by HBED defined several long (1.5 to 12 km) conductors (A.F. 91573). DDH TUG 206-210 were drilled (logs not submitted) to test the anomalies (A.F. 91573). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by geologic prospecting in the area (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by metagreywacke-derived metatexite of the Burntwood River Metamorphic Suite and orthogneiss (Zwanzig *et al.*, 1988; Fig. 98-1).

MINERALIZATION:

Minor amounts of pyrite ± graphite were observed in outcrop at several localities (Fig. 98-1; A.F. 92513).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. These long strike length conductive zones are concordant with stratigraphy and probably represent formational graphite-bearing layers.

REFERENCES:

Assessment Files 91593, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 99

NAME:

UTM: 6117693N/396442E

ACCESS: Bush aircraft to Hayhurst Lake or Limestone Point Lake, and along Limestone Creek.

AREA: 3 km east of Hayhurst Lake (Fig. 98-1).

AIRPHOTO: A26368-148

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. A HLEM survey performed during the winter of 1959-60 by HBED did not delineate an anomaly near the occurrence (A.F. 91573). An airborne EM and magnetometer survey was performed in 1980 for Shell Canada Resources Ltd (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by amphibolite (Zwanzig *et al.*, 1988; Fig. 98-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented at this locality (Zwanzig *et al.*, 1988). Less than 1% fine grained, disseminated pyrite was observed within a thin layer of quartz-rich, quartz-feldspar-garnet-biotite gneiss within a quartz-bearing amphibolite (Ostry, 1989).

GEOCHEMICAL DATA:

The results of a geochemical analysis of grab sample 65-89-BAT-13 taken from the mineralized layer are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91573, 92513
Manitoba Energy and Mines Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 100

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6115293N/403255E

ACCESS: Bush aircraft to Craik Lake.

AREA: Southwest of Craik Lake.

AIRPHOTO: A26367-190, A26387-122

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. A HLEM survey performed during the winter of 1959-60 by HBED defined several short anomalies and a 3 km long anomaly (A.F. 91573). DDH TUG 170*, TUG 172, TUG 174, TUG 176* and TUG 178 were drilled (total length at least 244 m; * logs not available) in 1959 (A.F. 91573). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by geologic prospecting in the area (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by graphite-bearing, metagreywacke-derived metatexite ± sillimanite ± cordierite ± garnet of the Burntwood River Metamorphic Suite and magnetite-biotite-feldspar-quartz gneiss of the Missi Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 100-1). The 3 km long EM anomaly is closely concordant to the contact of the two rock suites. The three drill holes for which logs are available intersected quartz-biotite-garnet gneiss ± hornblende, granite and hornblende gneiss with pegmatitic sections.

MINERALIZATION:

Each of the three drill holes intersected a 4.8 to 9.2 metre long interval of graphite ± pyrite in garnet-quartz-biotite gneiss with sections of near solid graphite (A.F. 91573).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. Although only graphite may be recorded in the drill logs, the majority of this type of occurrence have been found to contain more iron sulphide than carbon (Gale *et al.*, 1980).

REFERENCES:

Assessment Files 91573, 92513
Manitoba Energy and Mines, Minerals Division.

Gale, G.H., Baldwin, D.A. and Koo J.
1980: A geological evaluation of Precambrian massive sulphide deposit potential in Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-1, 137p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

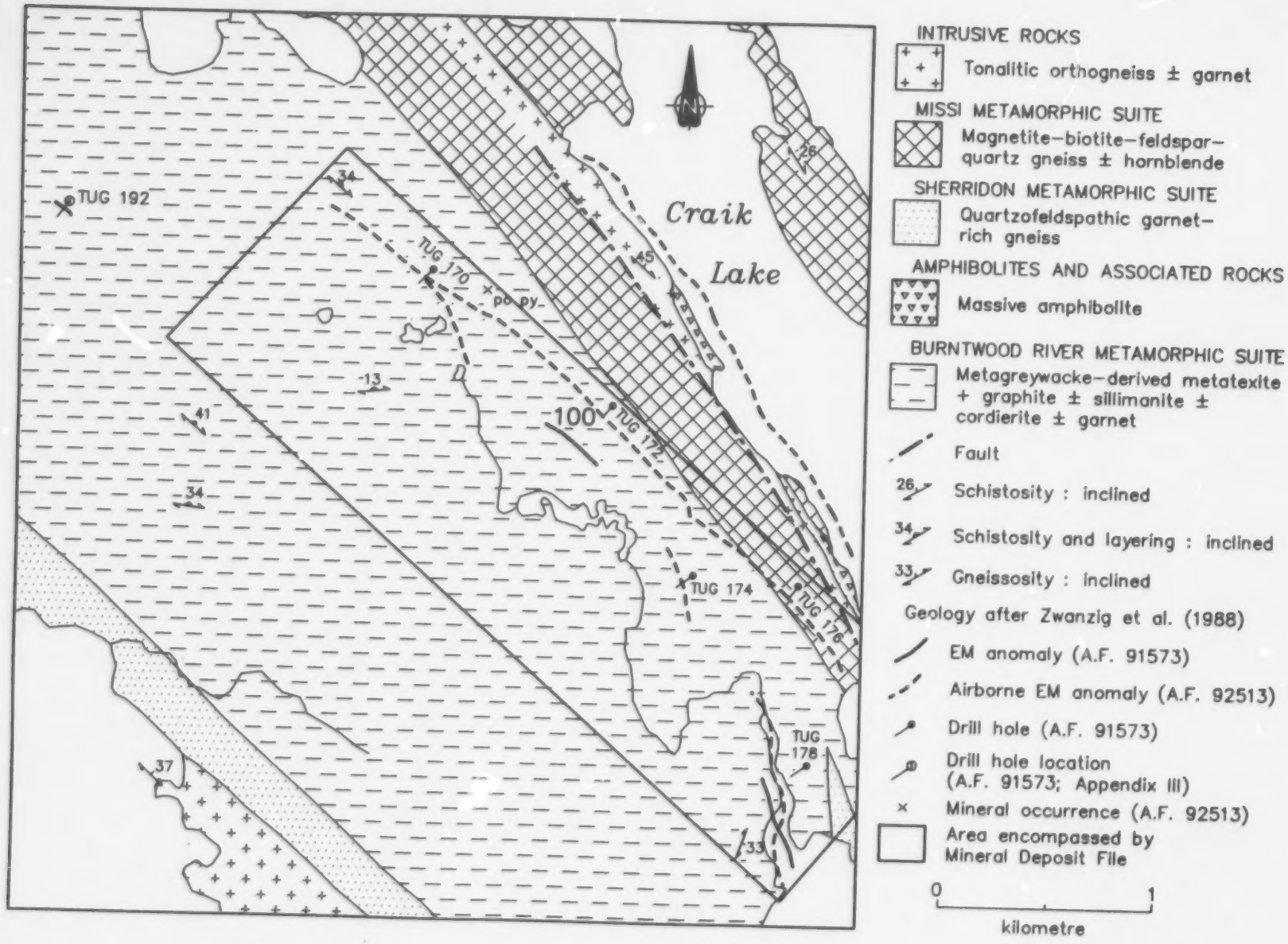


Figure 100-1: General geology, geophysical anomalies and drill hole locations at occurrence 100.

LOCATION: 101

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6117405N/399298E

ACCESS: Bush aircraft to Limestone Point Lake, and along Limestone Creek, then traverse; or bush aircraft to Craik Lake, and traverse.

AREA: 2 km southwest of Craik Lake.

AIRPHOTO: A26365-240

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. A HLEM survey performed during the winter of 1959-60 by HBED located several anomalies from 200 to 800 m long (A.F. 91573). Two holes (TUG 202, 204) were drilled (total length 444 m) in 1960 on claims TUG 56 and 44 (A.F. 91573). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by graphitic metagreywacke-derived metatexite ± sillimanite ± cordierite ± garnet of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 101-1). Both DDH intersected quartz-biotite-garnet gneiss. DDH TUG 204 also intersected sections of partially chloritized, quartz-biotite schist that exhibit a well developed foliation (possible shear) and a 7.6 metre section of sericitic schist.

MINERALIZATION:

Both DDH intersected several 1 to 13 metre lengths of graphite ± pyrite-bearing greywacke gneiss. DDH TUG 204 intersected a 36 cm length of 'slight' pyrite and chalcopyrite mineralization hosted by quartz-biotite-garnet-sericite schist with 70% quartz veins. The drill hole also intersected scattered blebs of chalcopyrite within graphite-quartz-biotite-garnet schist over 1.43 m (A.F. 91573).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Although graphite is the predominant mineralization recorded in the drill logs, the majority of this type of occurrence have been found to contain more iron sulphide than carbon (Gale *et al.*, 1980).

REFERENCES:

Assessment Files 91573, 92513
Manitoba Energy and Mines, Minerals Division.

Gale, G.H., Baldwin, D.A. and Koo J.
1980: A geological evaluation of Precambrian massive sulphide deposit potential in Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-1, 137p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

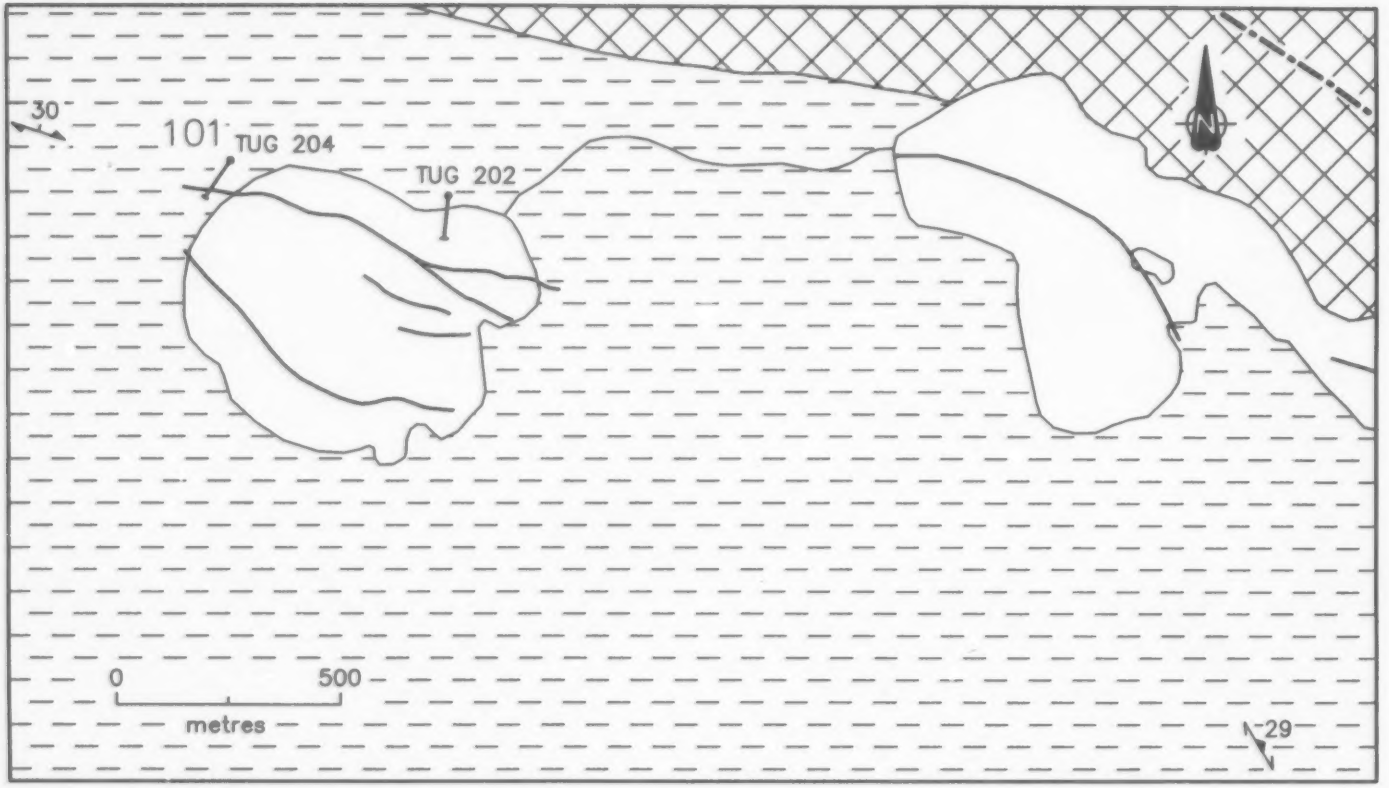


Figure 101-1: General geology, geophysical anomalies and drill hole locations at occurrence 101.

LOCATION: 102

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6116582N/398111E

ACCESS: Bush aircraft to Limestone Point Lake, and traverse.

AREA: Northeast of Limestone Point Lake and Limestone Creek.

AIRPHOTO: A26365-238, 240, A26368-147, A26387-120

EXPLORATION SUMMARY:

While flying an airborne radiation survey in 1954 Eldorado Mining and Refining Limited noted a gossan in the area (A.F. 91616). The area around the occurrence has been staked intermittently since 1959. A HLEM survey performed during the winter of 1959-60 by HBED defined anomalies contiguous to the occurrence(s) (A.F. 91573). DDH Tug 188 and 200 were drilled (logs not submitted) in 1960 to test anomalous geophysical zones. An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by prospecting that located several outcrops of anthophyllite-bearing rocks in the area (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by a band/layer of porphyroblastic anthophyllite ± cordierite ± garnet gneiss within tonalitic orthogneiss, bounded to the east, in part, by metagreywacke-derived metatexite of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 102-1). The anthophyllite gneiss band/layer is interpreted by Robertson (1953) to belong to the Sherridon Group gneisses. Ostry (1989) reports a crudely layered, on the order of cm, sequence of quartz-feldspar-biotite-garnet-magnetite ± anthophyllite gneiss with some layers/bands/lenses locally containing up to 50% very coarse garnets. The very coarse garnets locally contain porphyroblastic growths of magnetite. Some layers are anthophyllite-free and ferromagnesian mineral content within these layers ranges from 10 to 50%.

MINERALIZATION:

Numerous sites of anthophylite gneiss ± cordierite ± garnet with trace amounts of pyrrhotite ± pyrite ± chalcopyrite were reported by Shell along the creek in the region of the occurrence (Fig. 102-1; A.F. 92513). Minor amounts of disseminated pyrite were documented at this locality (Zwanzig *et al.*, 1988). Ostry (1989) reports up to 2% fine- to medium-grained pyrite that occurs as blebs, subhedral crystals and disseminated grains in compositionally banded/layered rocks consisting of medium- to coarse-grained quartz, feldspar, biotite, garnet, magnetite and/or anthophyllite. A recessive weathered 50 cm wide band/layer within this rock sequence is totally effaced by oxidation (Ostry, 1989).

GEOCHEMICAL DATA:

The results of a geochemical analysis of grab sample 65-89-BAT-12A are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Replacement type deposit. The unusual mineralogy of the conformable anthophyllite sequence/layers may reflect: 1) the original chemistry of a chemical sedimentary precipitate, with or without mixing during sedimentation; 2) alteration by hydrothermal fluid flow along a structure such as a fault or shear zone and possible transposition; or 3) transposition of an Fe-Mg alteration zone like that commonly associated with massive sulphide type deposits (anthophyllite-bearing rocks exhibit a spatial association with the Sherridon East Cu-Zn massive sulphide deposit in NTS 63N/3).

REFERENCES:

Assessment Files 91573, 91616, 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

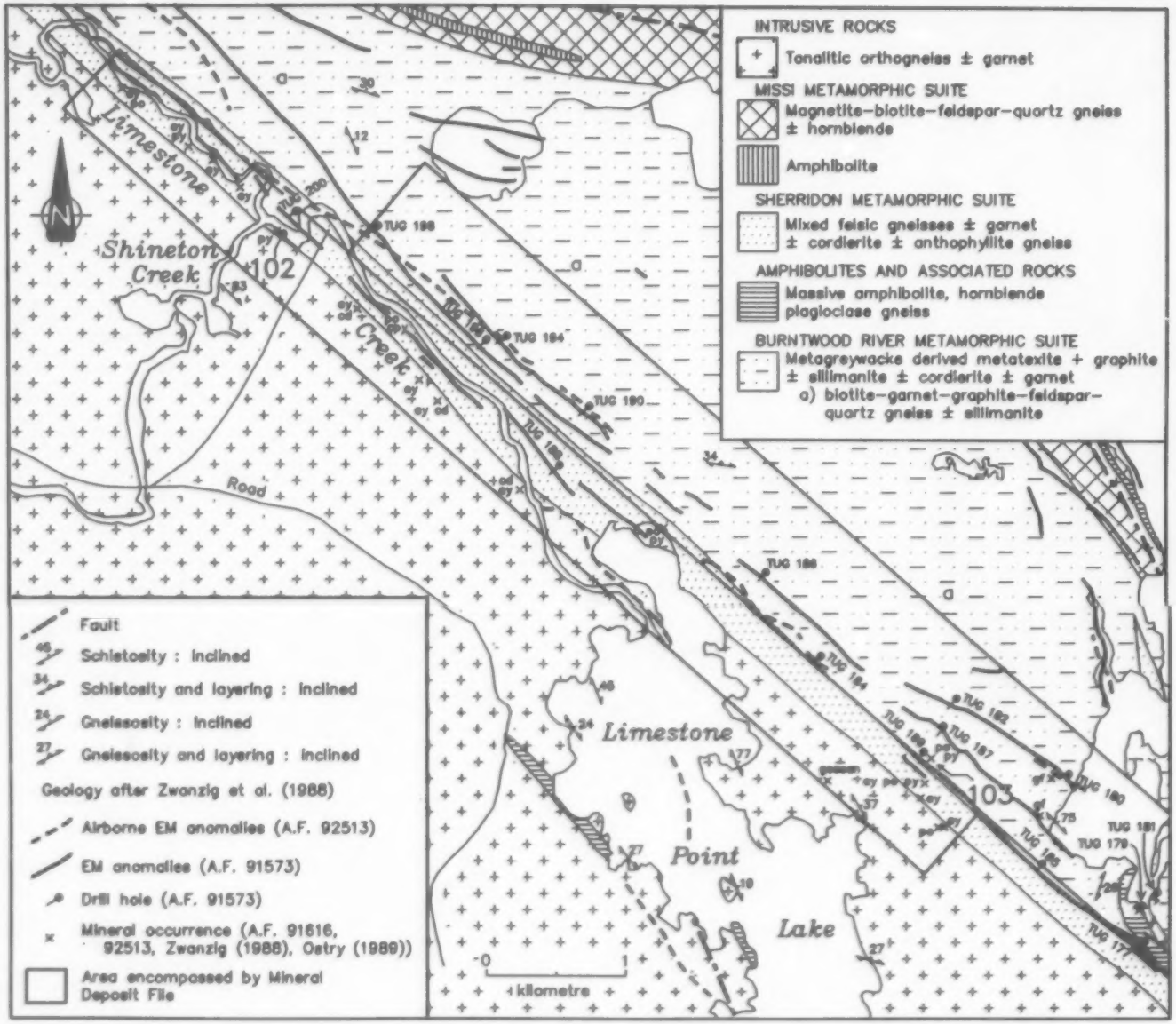


Figure 102-1: General geology, geophysical anomalies and drill hole locations at occurrences 102 and 103.

LOCATION: 103

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6112747N/402751E

ACCESS: Bush aircraft to Limestone Point Lake, and traverse.

AREA: Northeast of Limestone Point Lake and Limestone Creek (Fig. 102-1).

AIRPHOTO: A26365-238-240, A26367-190, A26387-120

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. A HLEM survey performed during the winter of 1959-60 by HBED defined concordant discontinuous anomalies along a length of 12 km in the area around the occurrence (A.F. 91573). DDH TUG 177, 179-182, 184-190, 194, 196, 198 and 200 were drilled (logs not submitted) in 1960 to test anomalies in the area (A.F. 91573). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later in the year by prospecting that located numerous showings of graphite, pyrite and pyrrhotite exposed in outcrop (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by biotite-garnet-feldspar-quartz gneiss ± sillimanite and graphite-bearing metagreywacke-derived metatexite ± sillimanite ± cordierite ± garnet of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 102-1).

MINERALIZATION:

Shell documented several outcrops that contain trace amounts of graphite ± pyrrhotite ± pyrite (Fig. 102-1). Several long EM conductors concordant to stratigraphy in the area may represent graphitic strata. Several DDH were collared in the area by HBED but the logs are not available (A.F. 91573).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation. The majority of this type of occurrence have been found to contain more iron sulphide than carbon (Gale *et al.*, 1980).

REFERENCES:

Assessment Files 91573, 92513
Manitoba Energy and Mines, Minerals Division.

Gale, G.H., Baldwin, D.A. and Koo J.
1980: A geological evaluation of Precambrian massive sulphide deposit potential in Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-1, 137p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

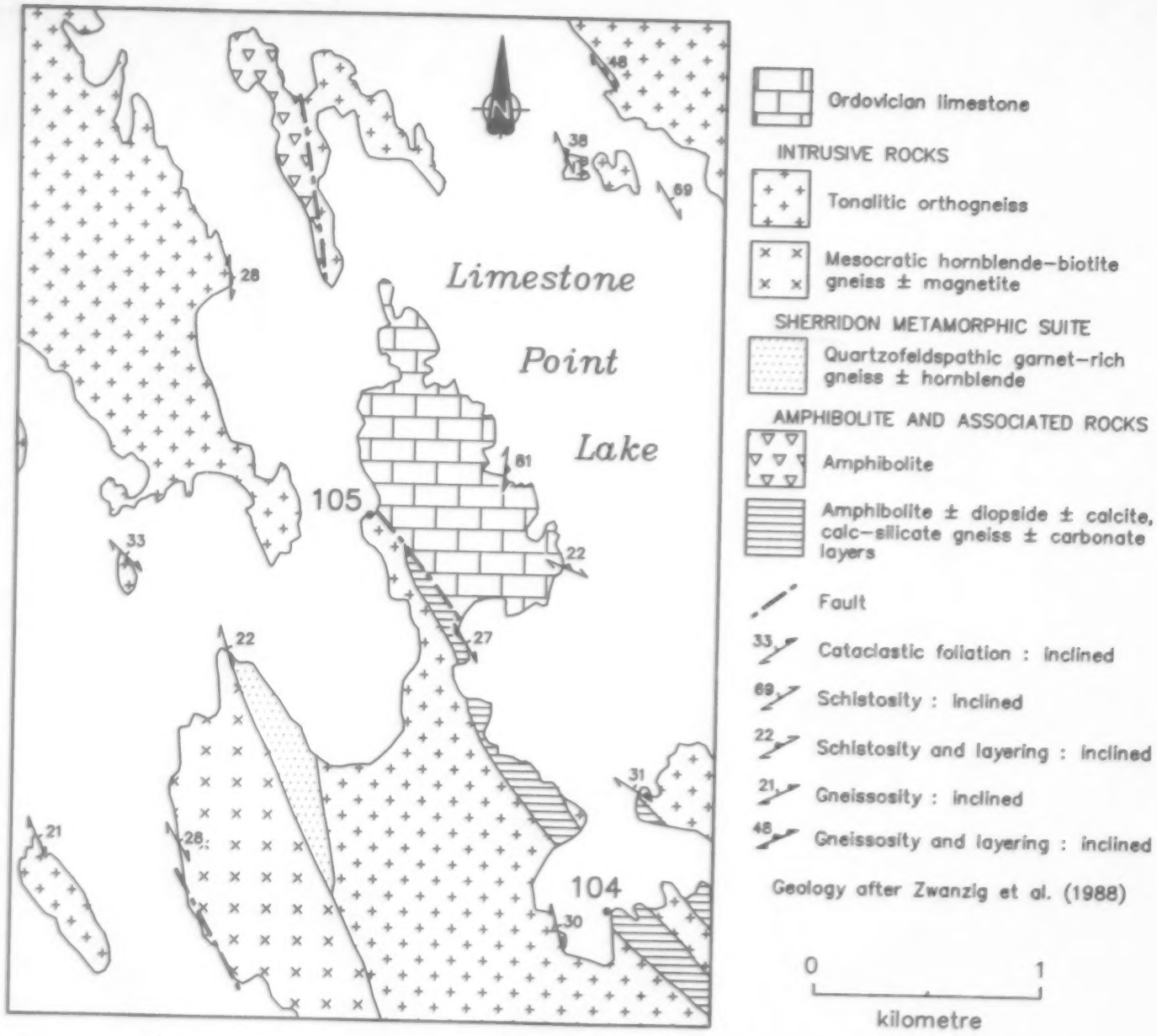


Figure 104-1: General geology, geophysical anomalies and drill hole locations at occurrences 104 and 105.

LOCATION: 104

NAME:
UTM: 6105666N/403829E
ACCESS: Bush aircraft to Limestone Point Lake.

AREA: Southeast shore of Limestone Point Lake.
AIRPHOTO: A26367-184

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by amphibolite ± diopside ± calcite and/or calc-silicate gneiss ± carbonate layers (Zwanzig *et al.*, 1988; Fig. 104-1). Ostry (1989) observed a fine grained quartz-bearing amphibolite ± calcite ± garnet that contains rare, less than 4 cm layers of well foliated garnet-biotite rock with accessory calcite and diopside.

MINERALIZATION:

Less than 1%, fine grained, disseminated pyrite occurs within the amphibolite (Ostry, 1989).

GEOCHEMICAL DATA:

The results of a geochemical analysis of grab sample 65-89-BAT-14A are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 105

NAME:

UTM: 6107454N/402739E

ACCESS: Bush aircraft to Limestone Point Lake.

AREA: Central Limestone Point Lake (Fig. 104-1).

AIRPHOTO: A26367-116

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since *circa* 1955. An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The occurrence is located at the contact between Precambrian orthogneiss and an Ordovician dolomite outlier (Zwanzig *et al.*, 1988; Fig. 104-1). Ostry (1989) observed mineralization within an approximately 30 m wide strongly foliated (sheared) zone at the contact between the Ordovician dolomite outlier and a sequence of fine- to coarse-grained quartz-rich gneiss, garnetiferous amphibolite and intermediate quartz-feldspar-hornblende ± biotite ± garnet gneiss.

MINERALIZATION:

Mineralization consists of up to 5%, fine- to medium-grained blebs, disseminations and fracture fillings of pyrite ± pyrrhotite ± chalcopyrite within 0.1 to 1 metre rusty weathered sections of quartz-feldspar ± carbonate breccia and very fine grained siliceous (silicified?) rock within the zone of deformation. A number of rusty weathered zones that are up to 5 m wide exhibit a very well developed foliation and recessive weathering. These zones contain lenses of silicified and carbonate-rich rock. Carbonate and magnetite are locally important accessory minerals within the zone of deformation.

GEOCHEMICAL DATA:

The results of geochemical analyses of three grab samples, 65-89-BAT-15A (very fine grained siliceous (silicified?) rock), BAT-15C (garnetiferous amphibolite) and BAT-15E (very fine grained siliceous (silicified?) rock), are presented in Appendix I. Sample BAT-15C contains 29 ppb Au.

CLASSIFICATION:

Disseminated mineralization - not classified. Sulphide minerals have been mobilized in a zone of shear.

REFERENCES:

Assessment File 92513
Manitoba Energy and Mines, Mines Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 106

NAME:
UTM: 6107602N/390393E
ACCESS: Bush aircraft to Moody Lake.

AREA: North end of Moody Lake.
AIRPHOTO: A26369-26

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey was performed in 1980 in the area for Shell Canada Resources Ltd. (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by amphibolite ± diopside ± calcite and/or calc-silicate gneiss ± carbonate layers (Zwanzig *et al.*, 1988; Fig. 106-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented at this locality (Zwanzig *et al.*, 1988). Ostry (1989) observed less than 1% pyrite ± pyrrhotite within a fine grained intermediate plagioclase-quartz-biotite gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

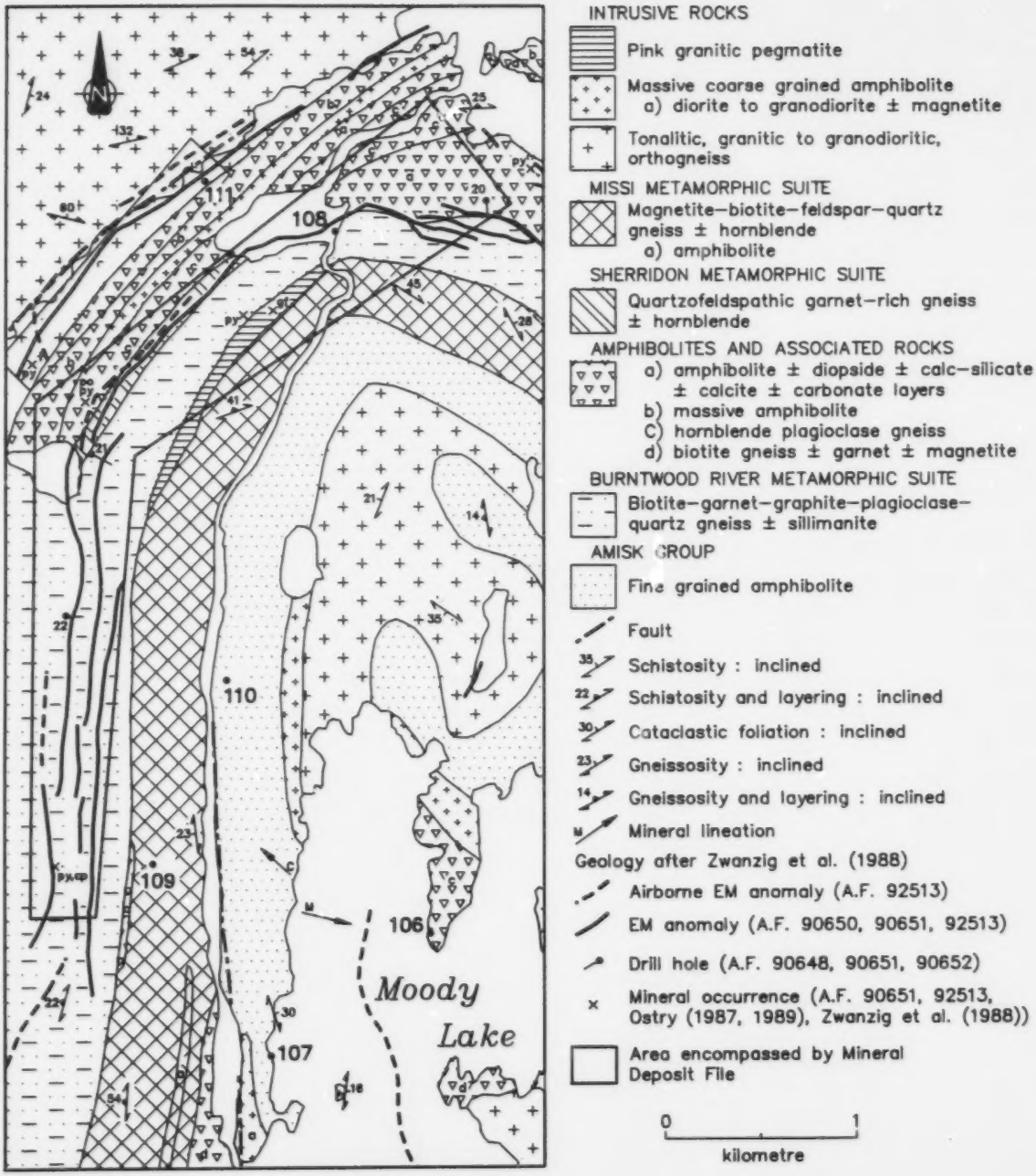


Figure 106-1: General geology, geophysical anomalies and drill hole locations at occurrences 106, 107, 108, 109, 110 and 111.

LOCATION: 107

NAME:

UTM: 6106896N/389573E

ACCESS: Bush aircraft to Moody Lake.

AREA: West shore of Moody Lake (Fig. 106-1).

AIRPHOTO: A26369-28

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989). The locality was held (1990) by Noko Resources Inc. as part of the claim MOOD 2.

GEOLOGICAL SETTING:

The area is underlain by Amisk Group fine grained amphibolite (Zwanzig *et al.*, 1988; Fig. 106-1). The occurrence is hosted by intermediate, massive, fine grained hornblende-feldspar gneiss that contains rare, less than 2 cm thick, calc-silicate-rich layers and less than 2 mm wide veins of biotite-calcite that fill late fractures (Ostry, 1989).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented at this locality (Zwanzig *et al.*, 1988). Ostry (1989) observed trace amounts of pyrite and pyrrhotite on late fracture surfaces.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 108

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6111267N/390041E

ACCESS: Bush aircraft to Moody Lake or Batty Lake and traverse.

AREA: East of creek connecting Moody Lake to Batty Lake (Fig. 106-1).

AIRPHOTO: A26369-24, 26

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). DDH 20, 21 and 22 (total length 363 m) were drilled in 1957 on claims BAT 41, 81 and 93 (A.F. 90648, 90651, 90652). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by a geological survey (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspar-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 106-1). The drill holes intersected a sequence of interlayered quartz-biotite ± plagioclase ± garnet gneiss, graphitic argillite, plagioclase-hornblende gneiss and quartz-biotite-hornblende-plagioclase gneiss. Chlorite and carbonate were observed locally in the drill core. A 5 to 6 m wide rusty weathered zone within quartz-feldspar-biotite-garnet-graphite (greywacke) gneiss was identified on surface at location 108 (Ostry, 1989).

MINERALIZATION:

Disseminated graphite and narrow zones, on the order of meters or less in core length, that contain from 5 to 45% iron sulphide minerals are ubiquitous throughout the core and prominent within graphitic argillaceous layers. The iron sulphide occurs primarily as: 1) pyrite stringers with subsidiary foliation parallel laminae, blebs and fine grained disseminations; or 2) fine grained pyrrhotite disseminations with or without pyrite stringers, blebs and/or disseminations. A 2.5 m intersection of 35% fine grained pyrrhotite and 5 to 10% pyrite within graphitic argillite was recorded in DDH 21. Ostry (1989) observed up to 1 m wide rusty weathered layers/lenses within the zone that contain trace amounts of fine grained disseminated graphite, pyrite and/or pyrrhotite.

GEOCHEMICAL DATA:

Selected core samples from mineralized intersections in DDH 20 and 21 were assayed for Au, Cu and locally for Ni. Low Cu concentrations, up to 0.08% (graphitic argillite - DDH 21) were reported. Three grab samples from the zone, samples 65-89-BAT-1A, -1B and -1C, were taken for geochemical analysis, however, anomalous concentrations were not reported. Results of the analyses are presented in Appendix I.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation.

REFERENCES:

Assessment Files 90648, 90650, 90651, 90652, 92513 Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 109

NAME:

UTM: 6108035N/388971E

ACCESS: Bush aircraft to Moody Lake or Batty Lake, along the creek between the two lakes, and traverse.

AREA: 750 metres west of Moody Lake (Fig. 106-1).

AIRPHOTO: A26369-26

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-1957 in the area by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 in the area for Shell Canada Resources Ltd. was followed later that year by a geological survey (A.F. 92513). The locality was held (1990) by Noko Resources Inc. as part of the claim MOOD 1.

GEOLOGICAL SETTING:

The area is underlain by magnetite-hornblende-biotite-feldspar-quartz gneiss of the Missi Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 106-1).

MINERALIZATION:

Shell reported an occurrence of pyrite at this location (A.F. 92513)

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 110

NAME:

UTM: 6109000N/389352E

ACCESS: Bush aircraft to Moody Lake and traverse.

AREA: East shore of creek between Moody Lake and Batty Lake (Fig. 106-1).

AIRPHOTO: A26369-26

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988). The locality was staked (1990) by Noko Resources Inc. as part of the claim MOOD 1.

GEOLOGICAL SETTING:

The area is underlain by fine grained amphibolite of the Amisk Group (Zwanzig *et al.*, 1988; Fig. 106-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented at this locality (Zwanzig *et al.*, 1988).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 111

NAME: Batty Lake gold
UTM: 6111588N/389407E
ACCESS: Bush aircraft to Batty Lake and traverse.

AREA: 2 km east of Batty Lake (Fig. 106-1).
AIRPHOTO: A26369-24

EXPLORATION SUMMARY:

This occurrence, known as Batty Lake gold (Robertson, 1949, 1953), has been staked intermittently since 1928. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd., (A.F. 90650, 90651). An airborne EM and magnetometer survey performed for Shell Canada Resources Ltd. in 1980 included the area around the occurrence. Gale (1980), Ostry (1987) and Zwanzig *et al.* (1988) have examined the occurrence. Ostry (1987) located 7 trenches/pits in the area (Fig. 111-1).

GEOLOGICAL SETTING:

The occurrence is located at the contact between 1) amphibolite ± garnet ± diopside ± calcite and/or calc-silicate gneiss ± carbonate layers and/or hornblende-plagioclase-rich gneiss; and 2) tonalite, granodiorite and/or granite intrusive rocks (Zwanzig *et al.*, 1988; Fig. 106-1). Robertson (1953) observed mineralization within black garnetiferous hornblende gneiss. The mineralization is hosted by a several meter thick layer/zone of aphanitic siliceous (silicified?) cherty rock ± biotite ± garnet that contains coarse- to mediumgrained hornblende ± quartz ± feldspar *lit.* The cherty rock forms a layer within a massive to layered amphibolite ± garnet ± carbonate and a hornblende-plagioclase ± garnet gneiss. Ribbons/*lit*/lenses of coarse grained hornblendite or epidote-feldspar-carbonate rock rimmed by hornblende were observed locally within the hornblende-plagioclase ± garnet gneiss (Ostry, 1987). The amphibolite sequence is bounded to the north by a linear swamp and to the south by layered, quartz-rich quartzofeldspathic gneiss, similar to rocks of the Sherridon Metamorphic Suite.

MINERALIZATION:

Robertson (1953) identified pyrrhotite within muck adjacent to the trenches. Gale (1980) observed 3 to 5% pyrite and trace amounts of pyrrhotite within a quartz-rich sedimentary rock. The cherty rock contains up to 5% very fine grained disseminated pyrrhotite. Pyrite lenses and stringers (mobilizate) make up approximately 1 to 2% of the mineralized zone and were observed commonly associated with the hornblende-rich *lit.*

GEOCHEMICAL DATA:

Fourteen grab samples were taken from the trenches/pits, where possible, and from outcrop in the vicinity of the trenches for geochemical analysis (Fig. 111-1). The samples contain up to 417 ppm Cu (65-89-BATGC-3), up to 222 ppm Zn (65-89-BATGC-9D) and up to 8 ppb Au (65-89-BATGC-3 and BATGC-9C). Results of the analyses are presented in Appendix I.

CLASSIFICATION:

Chemical sediment type deposit; other chemical sediments. The quantity of sulphide within the zones does not warrant classification as a sulphide facies iron formation.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Gale, G.H.
1980: Mineral deposit studies-Flin Flon-Kisseynew; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1980, p. 51-64.

Ostry, G.
1987: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1987, p. 87-90.

Robertson, D.S.
1949: Moody Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 49-20, 1:31 360.
1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

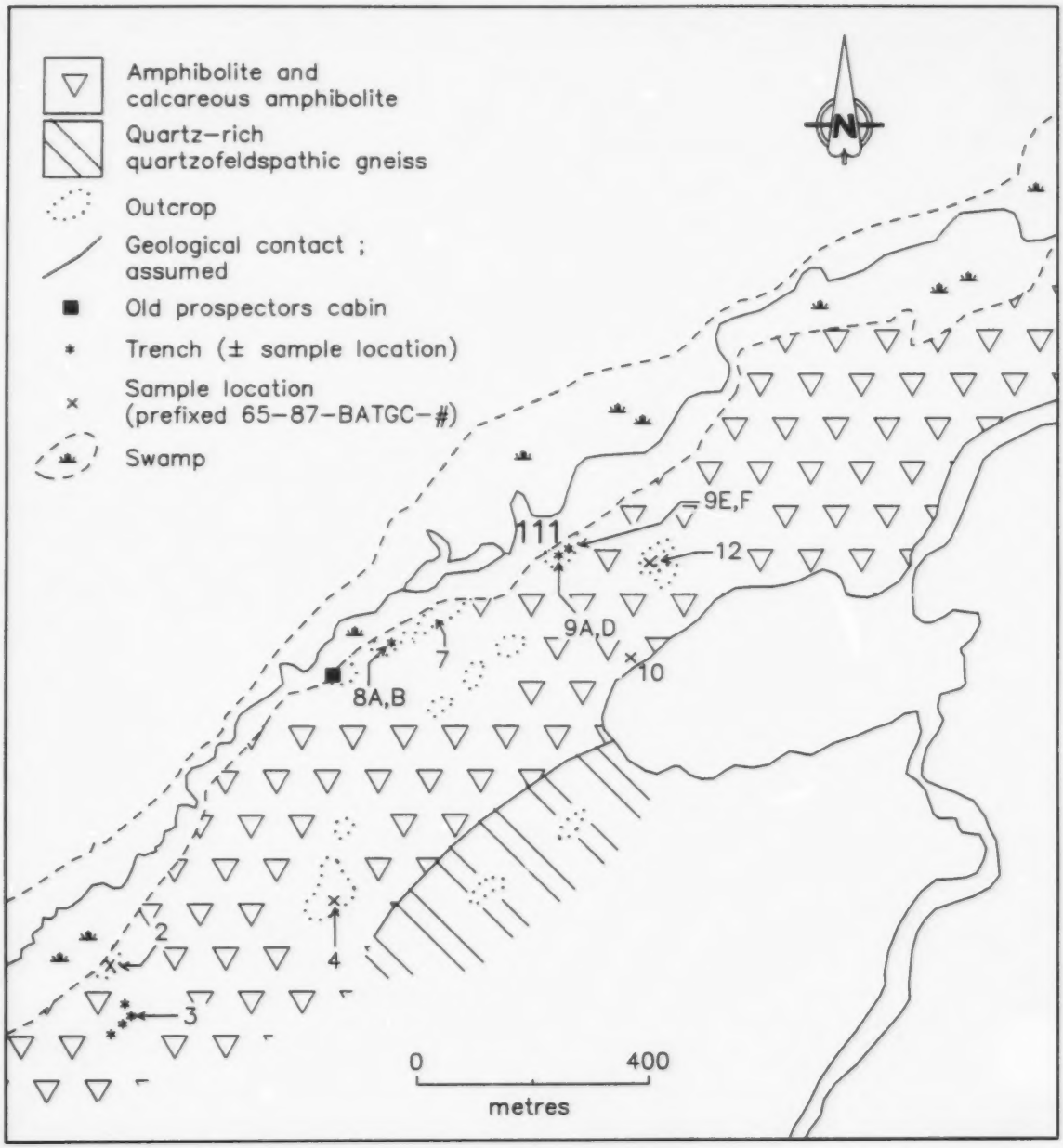


Figure 111-1:Geology, trench and sample locations at occurrence 111. Legend: a) amphibolite and calcareous amphibolite; and B) qz-rich quartzofeldspathic gneiss (modified from Ostry, 1987).

LOCATION: 112

NAME:

UTM: 6111636N/391869E

ACCESS: Bush aircraft to Batty Lake.

AREA: Small reef at southeast end of Batty Lake.

AIRPHOTO: A26365-45

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by prospecting (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by quartz-biotite-garnet gneiss (A.F. 90651).

MINERALIZATION:

Minor amounts of disseminated pyrrhotite were documented at this locality (Fig. 112-1; A.F. 90651).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

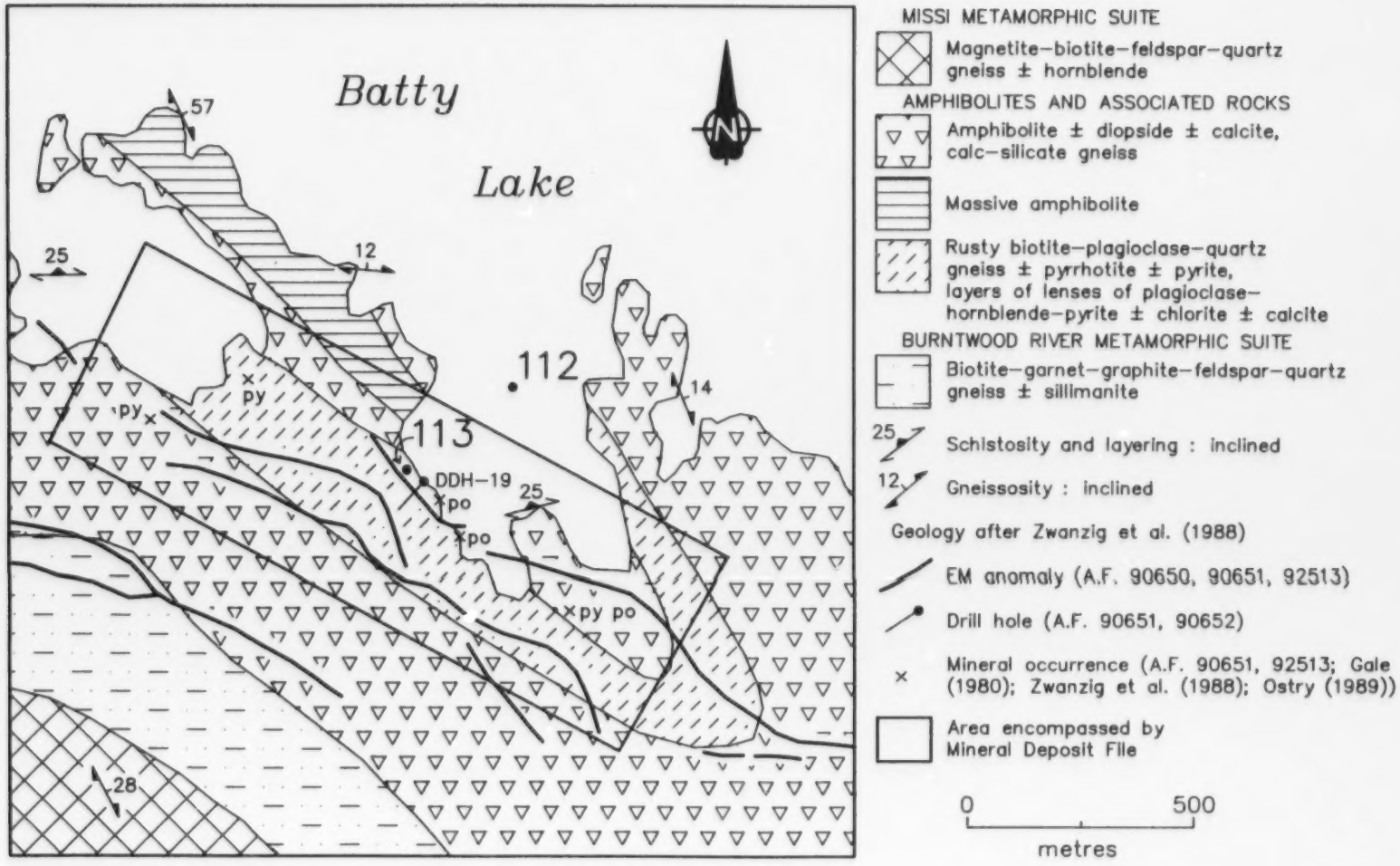


Figure 112-1: General geology, geophysical anomalies and drill hole locations at occurrences 112 and 113.

LOCATION: 113

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6111398N/391624E

ACCESS: Bush aircraft to Batty Lake.

AREA: Southeast shore of Batty Lake (Fig. 112-1).

AIRPHOTO: A26365-45

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). DDH 19 (length 160 m) was completed in 1957 on claim BAT 44 (A.F. 90651, 90652). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by a geological survey (A.F. 92513). The occurrence was examined by Gale (1980), Ostry (1987) and Zwanzig *et al.* (1988).

GEOLOGICAL SETTING:

The area is underlain by rusty biotite-plagioclase-quartz gneiss ± pyrrhotite ± pyrite plus layers or lenses of plagioclase-hornblende gneiss ± pyrite ± chlorite ± calcite (Zwanzig *et al.*, 1988; Fig. 112-1). Robertson (1953) mapped greywacke gneiss at the occurrence; he interpreted the rocks to the north as his Sherridon Group hornblende-plagioclase ± carbonate gneiss and to the south as his Sherridon Group gneissic quartzite and arkose. Gale (1980) documented a biotite-quartz gneiss with graphite at this locality. Investigations by Ostry (1987) indicate the mineralization is hosted by quartz-feldspar-biotite-garnet-graphite (greywacke) gneiss. DDH 19 intersected hornblende-plagioclase gneiss, graphitic argillite and quartz-feldspar-biotite-garnet ± hornblende gneiss. Two, less than 1 metre wide, mylonitic zones were documented in the drill core. Carbonate occurs locally.

MINERALIZATION:

Gale (1980) noted 5 to 10% pyrite and 1 to 2% graphite over 1 m within biotite-quartz gneiss. Ostry (1987) observed a 10 m wide rusty weathered zone within graphitic quartz-feldspar-biotite-garnet gneiss. Sulphides were not observed, however, the zone exhibits slight enrichment in graphite (up to 5%) and a very well developed foliation (sheared?). Two occurrences of pyrite were noted in the vicinity (Zwanzig *et al.*, 1988). All rock types intersected in the drill hole contain zones of disseminated and/or stringer iron sulphide mineralization with or without graphite.

GEOCHEMICAL DATA:

A bulk sample was taken at this location for geochemical analysis (Sample 65-87-BATGC-1). Results of the analysis are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified. The rusty weathered zone probably represents a graphite and iron sulphide-bearing layer(s) within the greywacke gneiss (*cf.* Location 108).

REFERENCES:

Assessment Files 90650, 90651, 90652, 92513
Manitoba Energy and Mines, Minerals Division.

Gale, G.H.
1980: Mineral deposit studies-Flin Flon-Kisseynew; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1980, p. 51-64.

Ostry, G.
1987: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1987, p. 87-90.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

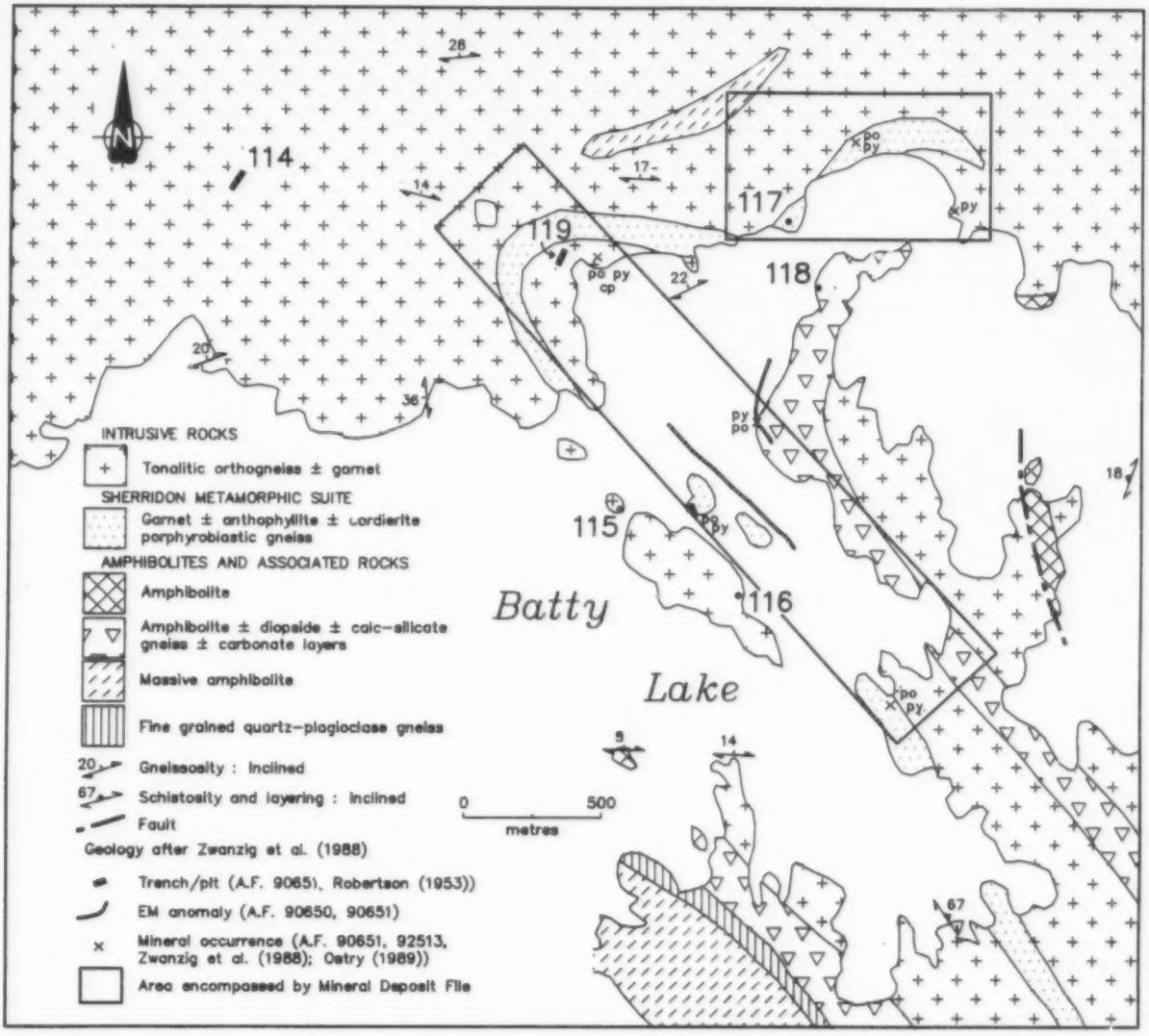


Figure 114-1:General geology, geophysical anomalies and drill hole locations at occurrences 114, 115, 116, 117, 118 and 119.

LOCATION: 114

NAME:

UTM: 6114268N/391899E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Batty Lake, and traverse.

AREA: 500 metres north of west end of Batty Lake

AIRPHOTO: A26365-46

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM, geological surveys and trenching were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). The area around the occurrence was included in an airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd., who also prospected in the area later that year (A.F. 91513).

GEOLOGICAL SETTING:

The area is underlain by tonalitic orthogneiss (Zwanzig *et al.*, 1988; Fig. 114-1).

MINERALIZATION:

A trench exposes pyrite mineralization hosted by leucocratic quartz-plagioclase gneiss (A.F. 90651).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 115

NAME:
UTM: 6113078N/393314E
ACCESS: Bush aircraft to Batty Lake.

AREA: Island in center of Batty Lake (Fig. 114-1).
AIRPHOTO: A26365-46

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed for Shell Canada Resources Ltd. in 1980 included the area around the occurrence (A.F. 91513). Zwanzig *et al.* (1988) examined the occurrence.

GEOLOGICAL SETTING:

The area is underlain by fine- to coarse-grained tonalitic orthogneiss ± garnet (Zwanzig *et al.*, 1988; Fig. 114-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented at this occurrence (Zwanzig *et al.*, 1988).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 116

NAME:

UTM: 6112759N/393737E

ACCESS: Bush aircraft to Batty Lake.

AREA: Island in center of Batty Lake (Fig. 114-1).

AIRPHOTO: A26365-46

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed by Shell Canada Resources Ltd. in 1980 included the area around the occurrence (A.F. 92513). The occurrence has been examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by fine- to coarse-grained tonalitic orthogneiss ± garnet (Zwanzig *et al.*, 1988; Fig. 114-1). Ostry (1989) describes the host rocks as layered, fine grained, quartz-rich (silicified?), quartz-feldspar-biotite gneiss ± hornblende ± magnetite that occurs adjacent to a pegmatite dike.

MINERALIZATION:

Up to 2% fine grained, disseminated pyrrhotite, and less than 1% fine- to medium-grained pyrite are associated with thin crosscutting quartz-feldspar veins within the 2 to 3 metre wide layer/band/lense of quartz-rich gneiss (Ostry, 1989).

GEOCHEMICAL DATA:

The results of a geochemical analysis of grab sample 65-89-BAT-24 taken at this location are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 117

NAME:

UTM: 6114133N/393969E

ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Batty Lake.

AREA: North shore of Batty Lake (Fig. 114-1).

AIRPHOTO: A26365-148

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. A geological survey was performed in 1956 and 1957 in the area by Britannia Mining and Smelting Co. Ltd. (A.F. 90651). The area around the occurrence was included in an airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd., who prospected the area later that year (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by anthophyllite-bearing porphyroblastic gneiss flanked by tonalitic orthogneiss (Zwanzig *et al.*, 1988; Fig. 114-1). Shell described the host rock of the west site (Fig. 114-1) as hornblende-rich, calc-silicate gneiss. The host rock at the other two sites is described as quartz-rich gneiss ± hornblende (A.F. 92513).

MINERALIZATION:

Minor disseminated pyrite and/or pyrrhotite mineralization occurs within anthophyllite-bearing rock (A.F. 92513).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Baldwin, D.A.
1977: Base metal mineralization in gneissic terrains; In Manitoba Mines, Resources and Environmental Management, Mineral Resources Division, Report of Field Activities, 1977, p. 113-115.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 118

NAME:

UTM: 6113851N/394059E

ACCESS: Bush aircraft to Batty Lake.

AREA: Central Batty Lake (Fig. 114-1).

AIRPHOTO: A26365-148

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey was performed in 1980 for Shell Canada Resources Ltd. in the area. Zwanzig, *et al.* (1988) and Ostry (1989) have examined the occurrence.

GEOLOGICAL SETTING:

The area is underlain by amphibolite ± diopside ± calcite and/or calc-silicate gneiss ± carbonate layers (Zwanzig *et al.*, 1988; Fig. 114-1). Ostry (1989) indicates the mineralization is associated with a 1 m wide siliceous (silicified?) layer within a medium grained, quartz-rich, quartz-feldspar-biotite ± garnet gneiss.

MINERALIZATION:

Up to 10%, fine- to medium-grained disseminations and blebs of pyrite occur within the siliceous layer.

GEOCHEMICAL DATA:

The results of a geochemical analysis of grab sample 65-89-BAT-5 taken from the mineralized layer are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Baldwin, D.A.
1977: Base metal mineralization in gneissic terrains; In Manitoba Mines, Resources and Environmental Management, Mineral Resources Division, Report of Field Activities, 1977, p. 113-115.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 119

NAME: Batty Lake sulphide
UTM: 6114008N/393133E
ACCESS: Bush aircraft to Batty Lake.

AREA: Central Batty Lake (Fig. 114-1).
AIRPHOTO: A26365-46, A26365-150

EXPLORATION SUMMARY:

This occurrence, known as Batty Lake sulphide (Robertson, 1949, 1953), has been staked intermittently since 1956. Robertson (1949) located two pits in the area in 1948. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. in the area (A.F. 90650, 90651). The occurrence was included in an airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. who did prospecting in the area later that year (A.F. 92513). Gale (1980), Gunter and Yamada (1985), Ostry (1987, 1989) and Zwanzig, *et al.* (1988) have examined the occurrence.

GEOLOGICAL SETTING:

The mineralization is hosted by a layered, compositionally variable, anthophyllite-bearing rock sequence flanked by tonalite, granodiorite and/or granite intrusive rocks (Zwanzig *et al.*, 1988; Fig. 114-1). Mineralization was observed at three localities: 1) adjacent to a pit located near the north shore of Batty Lake; 2) on an island in the central part of the lake, southeast of the pit; and 3) on a point on the south shore (Fig. 114-1). At the north pit the anthophyllite-bearing sequence is up to 30 m thick (possibly structurally thickened (Robertson, 1953)) and comprises, from structurally lowest to highest: 1) a coarse grained anthophyllite-rich (up to 90%) rock; 2) a medium grained quartz-feldspar-garnet-sillimanite gneiss (sillimanite and garnet are concentrated at the contact with layer 1 (above, *cf.* Location 38); and 3) medium grained quartz-feldspar-garnet-biotite gneiss that contains erratically distributed, fist-sized or smaller pods of coarse grained anthophyllite (Ostry, 1987). Cordierite was also observed at this locality (Gale, 1980). Robertson (1953), Gale (1980) and Ostry (1987, 1989) observed layered quartzrich gneiss ± magnetite ± garnet conformably flanking the anthophyllite-bearing rocks. On the island in the central portion of the lake, mineralization occurs within a layered fine- to medium-grained quartz-feldspar-biotite-anthophyllite ± sillimanite gneiss sequence that contains up to 20 cm wide layers composed of 90% anthophyllite plus sillimanite. At the south shore site, mineralization is hosted by a layered sequence of quartz-feldspar-garnet-biotite ± anthophyllite gneiss.

MINERALIZATION:

Mineralization was observed associated with anthophyllite-bearing rock adjacent to the pit located near the north shore of Batty Lake, to the southeast on an island in the central part of the lake and on a point along the south shore of the lake (Fig. 114-1). Although exposure within the pit has been totally effaced by oxidation, Gale (1980) and Ostry (1987) documented minor amounts, up to 5%, of fine grained disseminated pyrrhotite and pyrite ± chalcopyrite within the three lithologies described above. Medium- to fine-grained blebs and disseminations of pyrrhotite and locally, fine- to medium-grained subhedral crystals and blebs of pyrite comprise less than 1% of the gneiss sequence at the two southern occurrences.

GEOCHEMICAL DATA:

Bulk samples of the coarse grained anthophyllite-rich rock (65-87-BATGC-14A), sillimanite-bearing gneiss (65-87-BATGC-14B) and the quartz-feldspar-garnet-biotite gneiss that contains pods of coarse grained anthophyllite (65-87-BATGC-14C) from the northern pit area were submitted for geochemical analysis. Bulk samples 65-89-BAT-27A and 65-89-BAT-25A were taken for geochemical analysis from the island and south shore occurrences, respectively. Results of the analyses are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Replacement type deposit. The unusual mineralogy of the conformable anthophyllite sequence/layers may reflect: 1) the original chemistry of a chemical sedimentary precipitate, with or without mixing during sedimentation; 2) alteration by hydrothermal fluid flow along a structure such as a fault or shear zone and possible transposition; or 3) transposition of an Fe-Mg alteration zone like that commonly associated with massive sulphide type deposits (anthophyllite-bearing rocks exhibit a spatial association with the Sherridon East Cu-Zn massive sulphide deposit in NTS 63N/3).

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Baldwin, D.A.
1977: Base metal mineralization in gneissic terrains; In Manitoba Mines, Resources and Environmental Management, Mineral Resources Division, Report of Field Activities, 1977, p. 113-115.

Gale, G.H.

1980: Mineral deposit studies-Flin Flon-Kisseynew; In Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities, 1980, p. 51-64.

Gunter, W. R. and Yamada, P. H.

1985: Evaluation of industrial mineral occurrences in the Snow Lake area; In Manitoba Energy and Mines, Geological Services, Mines Branch, Report of Field Activities, 1985, p. 100-108.

Ostry, G.

1987: Mineral investigations in the Kisseynew gneiss terrain; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1987, p. 87-90.

1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Robertson, D.S.

1949: Moody Lake, Manitoba (Preliminary Map); Geological Survey of Canada, Paper 49-20, 1:31 360.

1953: Batty Lake map area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.

1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

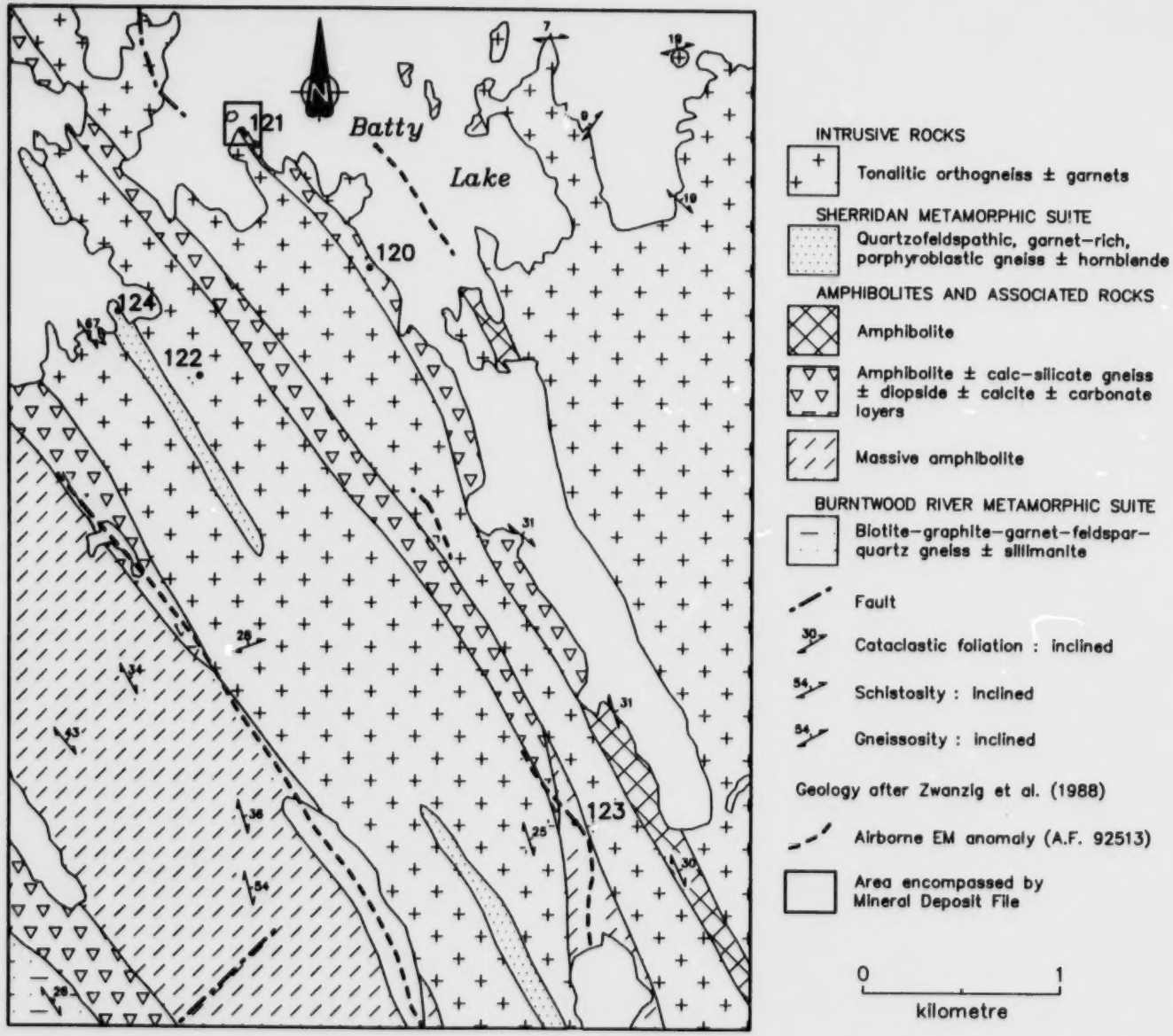


Figure 120-1: General geology, geophysical anomalies and drill hole locations at occurrences 120, 121, 122, 123 and 124.

LOCATION: 120

NAME:
UTM: 6111866N/395930E
ACCESS: Bush aircraft to Batty Lake.

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). The occurrence was examined by Zwanzig, *et al.* (1988).

GEOLOGICAL SETTING:

The area is underlain by amphibolite ± diopside ± calcite and/or calc-silicate gneiss ± carbonate layers (Zwanzig *et al.*, 1988; Fig. 120-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented by Zwanzig *et al.* (1988).

AREA: South shore of Batty Lake.
AIRPHOTO: A26368-144

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 121

NAME:
UTM: 6112524N/395269E
ACCESS: Bush aircraft to Batty Lake.

AREA: South shore of Batty Lake (Fig. 120-1).
AIRPHOTO: A26368-144

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. An airborne EM and magnetometer survey conducted in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). The occurrence has been examined by Zwanzig, *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by amphibolite ± diopside ± calcite and/or calc-silicate gneiss ± carbonate layers (Zwanzig *et al.*, 1988). Mineralization occurs within a rusty weathered up to 2 m wide quartz-feldspar-biotite-anthophyllite-garnet ± sillimanite gneiss layer that crops out on the south shore and, north along strike, on the island (Fig. 120-1; Ostry, 1989). The mineralized layer occurs within a layered sequence of intermediate and mafic hornblende-feldspar ± quartz ± garnet gneiss. The anthophyllite-bearing layer locally resembles a quartz-rich gneiss similar to rocks of the Sherridon Metamorphic Suite. Garnet-rich rock and garnetiferous hornblendite were observed locally within the host gneiss sequence. The majority of garnets are pink in colour (manganese-rich?).

MINERALIZATION:

Zwanzig *et al.* (1988) documented minor amounts of pyrite at the southern site. Mineralization at the southern site comprises up to 20% pyrite as disseminations, fracture fillings and less than 1 cm wide mobilizate veins, 1 to 2% fine grained disseminated pyrrhotite and the rare grain of chalcopyrite (Ostry, 1989). On the island, up to 10% fine grained disseminated pyrrhotite was observed within the mineralized layer.

GEOCHEMICAL DATA:

The results of geochemical analyses of two bulk grab samples from the mineralized layer, 65-89-BAT-6A (south shoreline) and BAT-6C (island), are presented in Appendix I. Sample 65-89-BAT-6A contains 550 ppm copper.

CLASSIFICATION:

Replacement type deposit. The unusual mineralogy of the conformable anthophyllite sequence/layers may reflect: 1) the original chemistry of a chemical sedimentary precipitate, with or without mixing during sedimentation; 2) alteration by hydrothermal fluid flow along a structure such as a fault or shear zone and possible transposition; or 3) transposition of an Fe-Mg alteration zone like that commonly associated with massive sulphide type deposits (anthophyllite-bearing rocks exhibit a spatial association with the Sherridon East Cu-Zn massive sulphide deposit in NTS 63N/3).

REFERENCES:

Assessment File 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 122

NAME:

UTM: 6111305N/395003E

ACCESS: Bush aircraft to Batty Lake and traverse.

EXPLORATION SUMMARY:

The vicinity of the occurrence was staked and held from 1979 to 1982 by Shell Canada Resources Ltd. Shell performed an airborne EM and magnetometer survey and prospecting in 1980 (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by tonalitic gneiss. A band/layer of garnet- and hornblende-bearing quartzofeldspathic gneiss ± anthophyllite crops out nearby (Zwanzig *et al.*, 1988; Fig. 120-1). Massive anthophyllite-rich rock is exposed within 50 m of the mineralization (A.F. 92513).

MINERALIZATION:

Minor amounts of disseminated pyrite and pyrrhotite within a hornblende-plagioclase gneiss were documented by Shell at this site (A.F. 92513).

AREA: 500 metres inland from south shore of Batty Lake (Fig. 120-1).

AIRPHOTO: A26365-150

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 123

NAME:

UTM: 6108919N/397019E

ACCESS: Bush aircraft to Batty Lake and traverse.

EXPLORATION SUMMARY:

The vicinity of the occurrence was staked and held from 1979 to 1982 by Shell Canada Resources Ltd. They performed an airborne EM and magnetometer survey in 1980 that included the occurrence (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by massive amphibolite (Zwanzig *et al.*, 1988; Fig. 120-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented by Zwanzig *et al.* (1988).

AREA: 200 m south of Batty Lake (Fig. 120-1).

AIRPHOTO: A26368-142

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 124

NAME:

UTM: 6111629N/394662E

ACCESS: Bush aircraft to Batty Lake.

AREA: South shore of Batty Lake (Fig. 120-1).

AIRPHOTO: A26365-150

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. in the area (A.F. 90650, 90651). Shell Canada Resources Ltd. included the area around the occurrence in an airborne EM and magnetometer survey in 1980, followed later that year by prospecting (A.F. 92513). The occurrence has been examined by Zwanzig *et al.*, (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by quartzofeldspathic garnet-rich gneiss ± hornblende ± anthophyllite (Zwanzig *et al.*, 1988; Fig. 120-1). Ostry (1989) observed a fine grained, cherty appearing, siliceous quartz-feldspar-biotite gneiss at location 124.

MINERALIZATION:

Minor amounts of disseminated pyrite were documented at this site (Zwanzig *et al.*, 1988). Shell documented minor amounts of pyrite and pyrrhotite within a hornblende-plagioclase gneiss (A.F. 90651). Ostry (1989) observed up to 3%, very fine- to fine-grained, disseminated pyrite ± pyrrhotite within a fine grained, siliceous quartz-feldspar-biotite gneiss.

GEOCHEMICAL DATA:

The results of a geochemical analysis of grab sample 65-89-BAT-26A taken from the mineralized rock are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

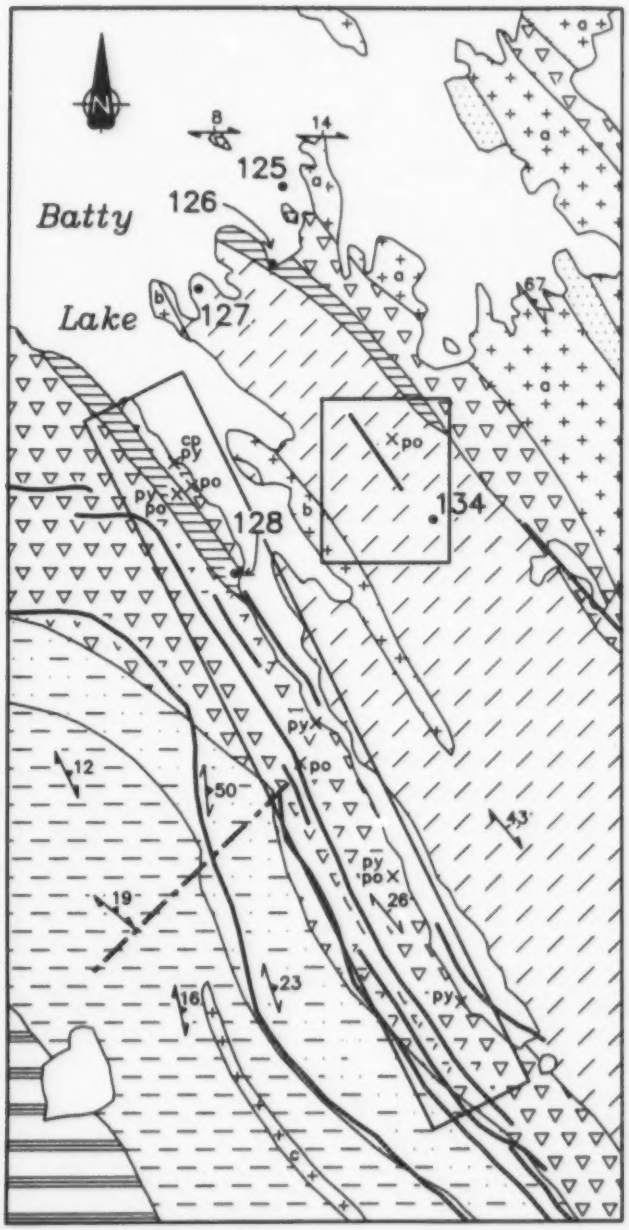
Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.



INTRUSIVE ROCKS

a) Tonalitic orthogneiss ± garnet
b) Massive coarse grained amphibolite, metagabbro
c) Pink granitic pegmatite

MISSI METAMORPHIC SUITE

Magnetite–biotite feldspar–quartz gneiss ± hornblende

SHERRIDON METAMORPHIC SUITE

Garnet ± anthophyllite ± cordierite porphyroblastic gneiss

AMPHIBOLITES AND ASSOCIATED ROCKS

Amphibolite ± diopside ± calc–silicate ± calcite ± carbonate layers

Massive amphibolite

Fine grained quartz–plagioclase gneiss

BURNTWOOD RIVER METAMORPHIC SUITE

Biotite–garnet–graphite–feldspar–quartz gneiss ± sillimanite

AMISK GROUP

Metabasalt

26 Schistosity : inclined

23 Schistosity and layering : inclined

43 Gneissosity : inclined

19 Gneissosity and layering : inclined

Fault

Geology after Zwanzig et al. (1988)

EM anomaly (A.F. 90650, 90651, 92513)

× Mineral occurrence (A.F. 90651, 92513; Zwanzig et al. (1988); Ostry (1989))

Area encompassed by Mineral Deposit File

0 1

kilometre

Figure 125-1: General geology and geophysical anomalies at occurrences 125, 126, 127, 128 and 134.

LOCATION: 125

NAME:

UTM: 5111961N/393566E

ACCESS: Bush aircraft to Batty Lake.

AREA: South shore of Batty Lake.

AIRPHOTO: A26365-45

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). Zwanzig *et al.*(1988) and Ostry (1989) have examined the occurrence.

GEOLOGICAL SETTING:

The area is underlain by felsic intrusive rocks and amphibolite (Zwanzig *et al.*, 1988; Fig. 125-1). Ostry (1989) observed a 5 to 10 cm thick iron stained and apparently leached layer within a layered, medium grained, quartz-rich quartz-feldspar-biotite-garnet gneiss sequence.

MINERALIZATION:

Minor amounts of disseminated pyrite were documented by Zwanzig *et al.* (1988). Ostry (1989) reported that the iron stained layer contains up to 3%, fine grained, disseminated pyrrhotite.

GEOCHEMICAL DATA:

The results of a geochemical analysis of grab sample 65-89-BAT-4 taken from the mineralized layer are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 126

NAME:

UTM: 6111693N/393490E

ACCESS: Bush aircraft to Batty Lake.

AREA: South shore of Batty Lake (Fig. 125-1).

AIRPHOTO: A26365-45

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988).

GEOLOGICAL SETTING:

The area is underlain by fine grained, quartz-plagioclase gneiss (Zwanzig *et al.*, 1988; Fig. 125-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented by Zwanzig *et al.* (1988). Britannia reported traces of disseminated pyrrhotite within hornblende-plagioclase-garnet gneiss at the occurrence (A.F. 90651).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 127

NAME:

UTM: 6111607N/393231E

ACCESS: Bush aircraft to Batty Lake.

AREA: South shore of Batty Lake (Fig. 125-1).

AIRPHOTO: A26365-45

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey was performed in the area in 1980 for Shell Canada Resources Ltd. (A.F. 91513). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by fine grained, massive amphibolite ± biotite (Zwanzig *et al.*, 1988; Fig. 125-1). Mineralization is associated with an approximately 5 m wide siliceous quartz-feldspar-biotite gneiss layer/lense (possibly silicified amphibolite) adjacent to a pegmatite dike (Ostry, 1989).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented by Zwanzig *et al.* (1988). Ostry (1989) documented up to 5%, fine grained, disseminated, pyrrhotite within the siliceous rock.

GEOCHEMICAL DATA:

The results of geochemical analyses of two grab samples, 6589-BAT-3A (mineralized layer/lense) and BAT-3C (mineralized rubble adjacent to mineralized layer/lense), are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 128

NAME:

UTM: 6110407N/393347E
ACCESS: Bush aircraft to Batty Lake.

AREA: East shore of long bay on southeast shore of Batty Lake (Fig. 125-1).
AIRPHOTO: A26365-45, 152

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by a geological survey (A.F. 91513). The occurrence was examined by Zwanzig *et al.* (1988).

GEOLOGICAL SETTING:

The area is underlain by amphibolite ± diopside ± calcite and/or calc-silicate gneiss ± carbonate layers (Zwanzig *et al.*, 1988; Fig. 125-1). Mineralization at Location 128 occurs within a siliceous (silicified?) quartz-feldspar-biotite ± garnet ± hornblende ± diopside ± carbonate gneiss located adjacent to a pegmatite dike within amphibolite.

MINERALIZATION:

Minor amounts of disseminated pyrite ± pyrrhotite were documented at several apparently stratigraphically equivalent sites (Fig. 125-1) within the area (Zwanzig *et al.*, 1988; A.F. 90651, 92513). Zwanzig *et al.* (1988) reports chalcopyrite at one site. Ostry (1989) observed 7 to 8% fine grained, disseminated pyrrhotite locally within the siliceous gneiss.

GEOCHEMICAL DATA:

The results of a geochemical analysis of grab sample 65-89-BAT-2A taken from the siliceous gneiss are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified. A band of calcareous amphibolite contains minor amounts of iron sulphide with possible local secondary silicification and sulphide concentration related to the emplacement of pegmatites.

REFERENCES:

Assessment Files 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 129

NAME:

UTM: 6107445N/394489E

ACCESS: By logging road from Sherridon, Manitoba to Batty Lake, and traverse; or bush aircraft to Batty Lake, Moody Lake, or Zdan Lake, and traverse.

AREA: 750 metres northwest of Zdan Lake.

AIRPHOTO: A26365-152

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by a geological survey (A.F. 92513). An HLEM (Max Min II) survey performed in 1983 by HBED included the area around the occurrence (A.F. 92837, 92865).

GEOLOGICAL SETTING:

The area is underlain by magnetite-biotite-feldspar-quartz gneiss ± hornblende of the Missi Metamorphic Suite adjacent to and flanked to the east by graphite-bearing, quartz-plagioclase-biotite gneisses of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 129-1).

MINERALIZATION:

Trace amounts of pyrrhotite were observed at several exposures of hornblende-biotite-plagioclase gneiss that may contain anthophyllite (A.F. 92513).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90650, 90651, 92513, 92837, 92865 Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G. 1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

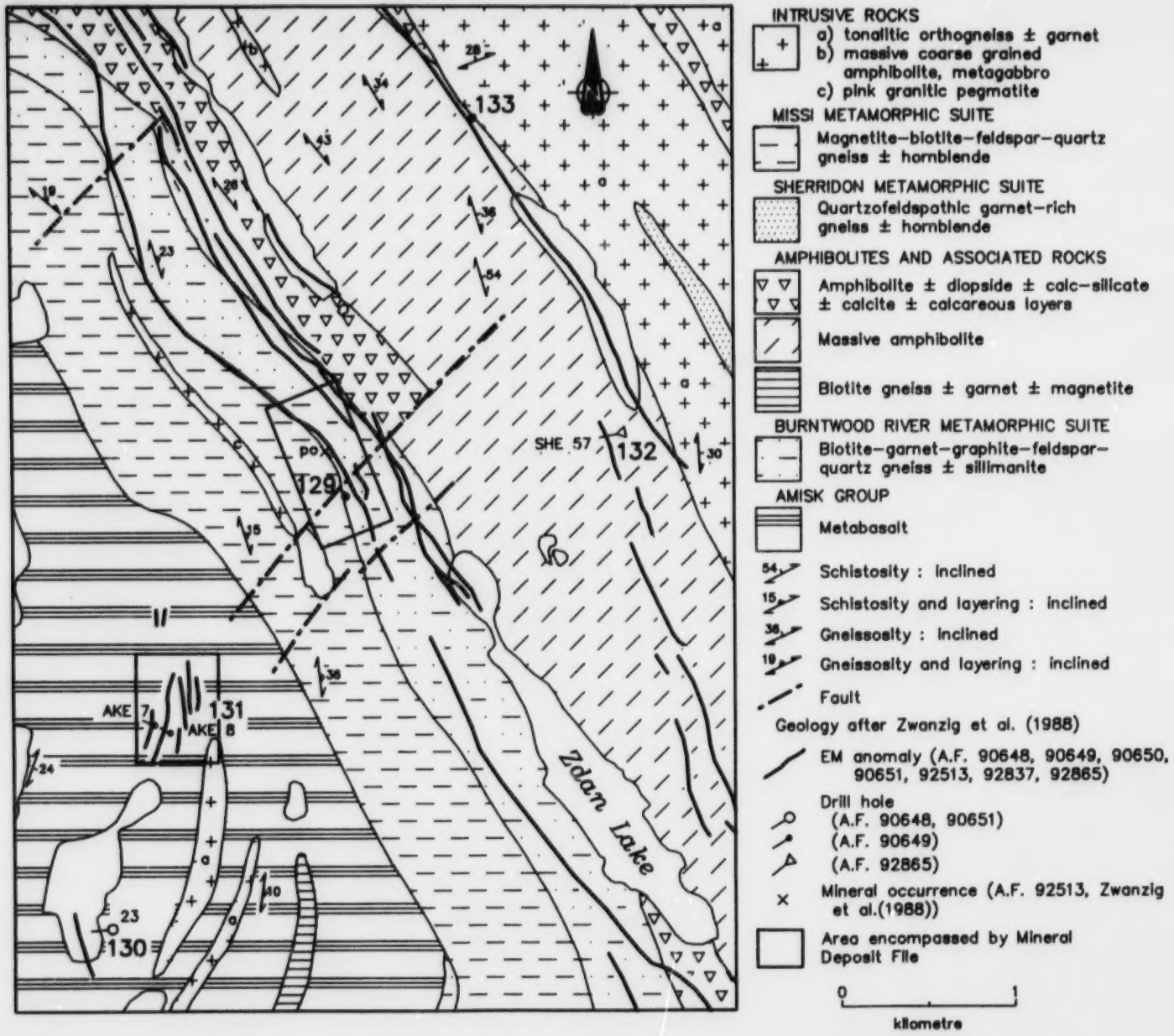


Figure 129-1: General geology, geophysical anomalies and drill hole locations at occurrences 129, 130, 131, 132 and 133.

LOCATION: 130

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6104978N/393022E

ACCESS: Bush aircraft to Moody Lake and traverse.

AREA: 500 metres east of the southeast end of Moody Lake on a small, unnamed lake (Fig. 129-1).

AIRPHOTO: A26365-40

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). DDH 23 (length 117 m) was drilled in 1957 on claim MOD 76 (A.F. 90648, 90651). The area was included in an airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by Amisk Group fine grained metabasalt (Zwanzig *et al.*, 1988; Fig. 129-1). Britannia reported that interlayered dark coloured hornblende ± biotite-plagioclase gneiss (amphibolite) and grey biotite-quartz-feldspar ± garnet ± hornblende gneiss were intersected in the drill hole.

MINERALIZATION:

Numerous drill hole intersections that contain 5 to 15% disseminated pyrite and range from 0.3 to 4.6 m in core length occur in both rock types. Carbonate stringers were reported locally within the amphibolite (A.F. 90652).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 90648, 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 131

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6106093N/393397E

ACCESS: Bush aircraft to Moody Lake and traverse.

AREA: 750 metres east of Moody Lake (Fig. 129-1).

AIRPHOTO: A26365-41

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). A HLEM survey performed in 1970 by HBED was followed in 1971 by the drilling of DDH AKE 7 and 8 (total length 97 m) on claim CB 306 (A.F. 90649). The area around the occurrence was included in an airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by Amisk Group fine grained metabasalt (Zwanzig *et al.*, 1988; Fig. 129-1). The drill holes intersected laminated biotite-plagioclase-quartz gneiss ± hornblende ± garnet interlayered with amphibolite and hornblende-plagioclase-quartz gneiss.

MINERALIZATION:

Intersections of 40 to 50% pyrrhotite over 24 cm in core length (DDH AKE 7) and 80 to 90% pyrrhotite over 37 cm in core length (DDH AKE 8) occur within the biotite-plagioclase-quartz (greywacke?) gneiss. Britannia documented minor amounts of pyrite in greywacke gneiss north of the EM conductor (A.F. 90651).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 90649, 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 132

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6107749N/395989E

ACCESS: Bush aircraft to Zdan or Batty Lakes, and traverse.

AREA: 1 km northeast of Zdan Lake (Fig. 129-1).

AIRPHOTO: A26368-140

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. A HLEM survey was performed during the winter of 1959-60 in the area by HBED (A.F. 91573). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). A HLEM (Max Min II) survey performed in 1983 by HBED included the occurrence (A.F. 92837, 92865). DDH SHE 57 (length 81 m) was drilled in 1984 on claim CB 10672 to test an anomaly 275 m in length (A.F. 92865).

GEOLOGICAL SETTING:

The area is underlain by amphibolite (Zwanzig *et al.*, 1988; Fig. 129-1). The drill hole intersected hornblende-quartz-feldspar-biotite gneiss ± garnet (A.F. 92865).

MINERALIZATION:

Numerous intersections of up to 10% disseminations, blebs and fine stringers of pyrrhotite ± pyrite and rare flakes of graphite were encountered in the drill hole. Two siliceous sections (each less than 1.71 m long) of nongarnetiferous, hornblende-quartz-feldspar-biotite gneiss containing less than 3% finely disseminated pyrrhotite, less than 1% pyrite and up to 5% graphite were intersected near the end of the drill hole (A.F. 92865).

GEOCHEMICAL DATA:

The sulphide-bearing zones were assayed for gold, silver, copper and zinc. A 43 cm long sample contained 0.05% Cu and 0.2% Zn (A.F. 92865).

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91573, 92513, 92837, 92865
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 133

NAME:

UTM: 6109641N/395186E

ACCESS: Bush aircraft to Batty Lake and traverse.

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence (A.F. 92513). The occurrence was examined by Zwanzig *et al.* (1988).

GEOLOGICAL SETTING:

The occurrence is situated at a contact between massive amphibolite and fine- to coarse-grained tonalitic orthogneiss (Zwanzig *et al.*, 1988; Fig. 129-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were observed within the amphibolite by Zwanzig *et al.* (1988).

AREA: 1.5 km southwest of large bay on south shore of Batty Lake (Fig. 129-1).

AIRPHOTO: A26365-152

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 134

NAME:

UTM: 6110750N/394118E

ACCESS: Bush aircraft to Batty Lake, and traverse.

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by a geological survey in the area (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by amphibolite ± diopside ± calcite and/or calc-silicate gneiss ± carbonate layers (Zwanzig *et al.*, 1988).

MINERALIZATION:

Trace amounts of pyrrhotite ± pyrite within hornblende-plagioclase gneiss is reported at two sites (A.F. 92513).

AREA: 300 metres south of Batty Lake (Fig. 134-1).

AIRPHOTO: A26365-150

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 90650, 90651, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

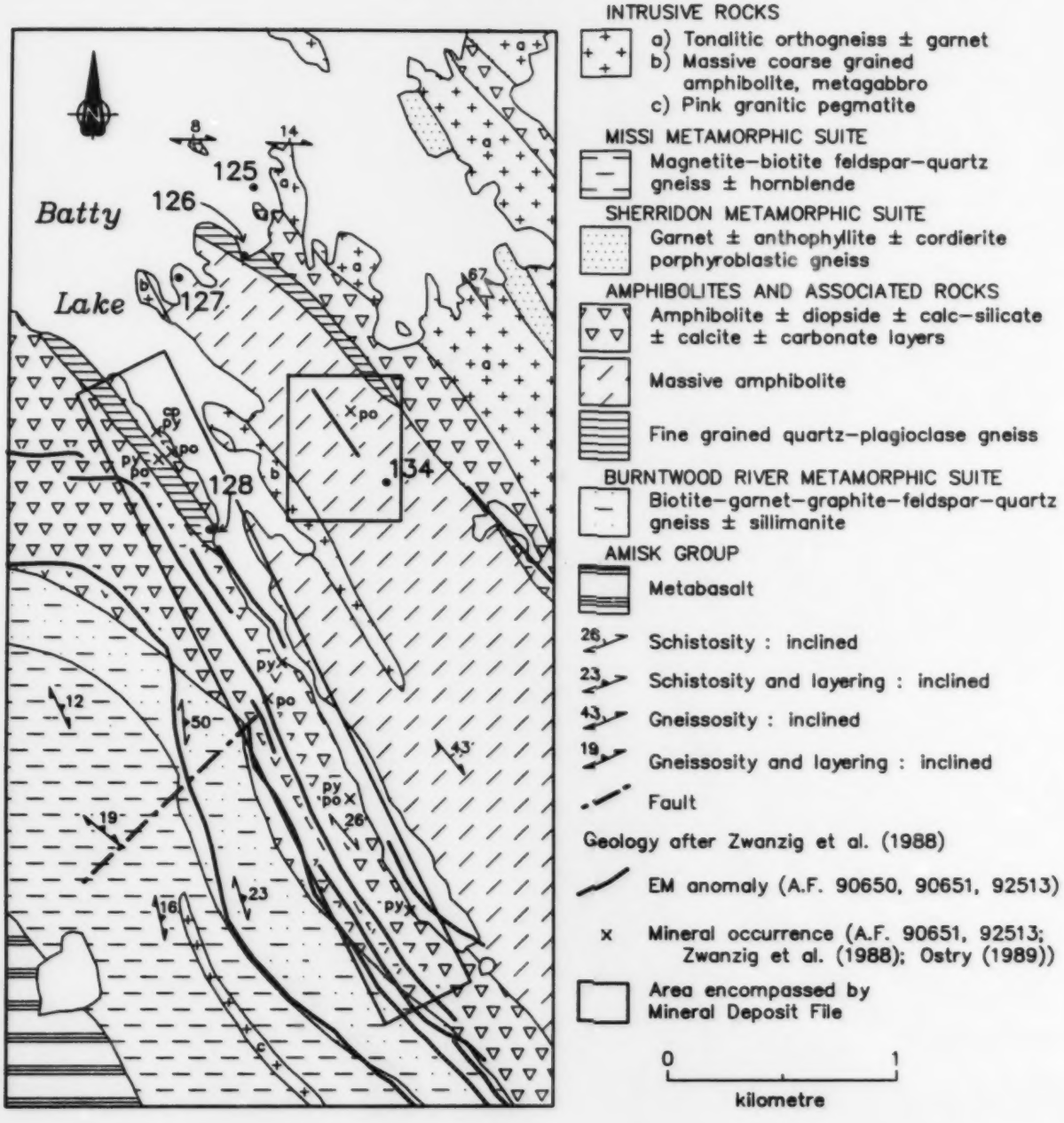


Figure 134-1: General geology and geophysical anomalies at occurrences 125, 126, 127, 128 and 134.

LOCATION: 135

NAME:

UTM: 6100091N/399940E

ACCESS: Bush aircraft to Fairwind Lake.

AREA: Southwest shore of Fairwind Lake

AIRPHOTO: A26365-228

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1948. HBED performed a HLEM survey during the winter of 1959-60 in the area around the occurrence (A.F. 91573). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. in the area was followed later that year by prospecting (A.F. 92513). An HLEM (Apex Max Min II) survey performed in 1983 by HBED included the occurrence (A.F. 92837). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by hornblende-plagioclase gneiss with fine grained, quartz-plagioclase gneisses, diopside, calcite and calc-silicate layers as important local constituents (Zwanzig *et al.*, 1988; Fig. 135-1). Ostry (1989) documented a layered, on the order of cms to 10's of cms, sequence of plagioclase-quartz-hornblende-biotite ± diopside ± garnet gneiss, amphibolite, marble and very fine grained siliceous, cherty appearing gneiss.

MINERALIZATION:

Minor amounts of disseminated pyrite and pyrrhotite ± chalcopyrite were documented at two stratigraphically equivalent sites (Zwanzig *et al.*, 1988). Ostry (1989) reported up to 3% disseminated pyrrhotite ± pyrite locally within the gneiss sequence.

GEOCHEMICAL DATA:

The results of geochemical analyses of two mineralized grab samples, 65-89-BAT-16A and BAT-17A taken from the gneiss sequence are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91573, 92513, 92837
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

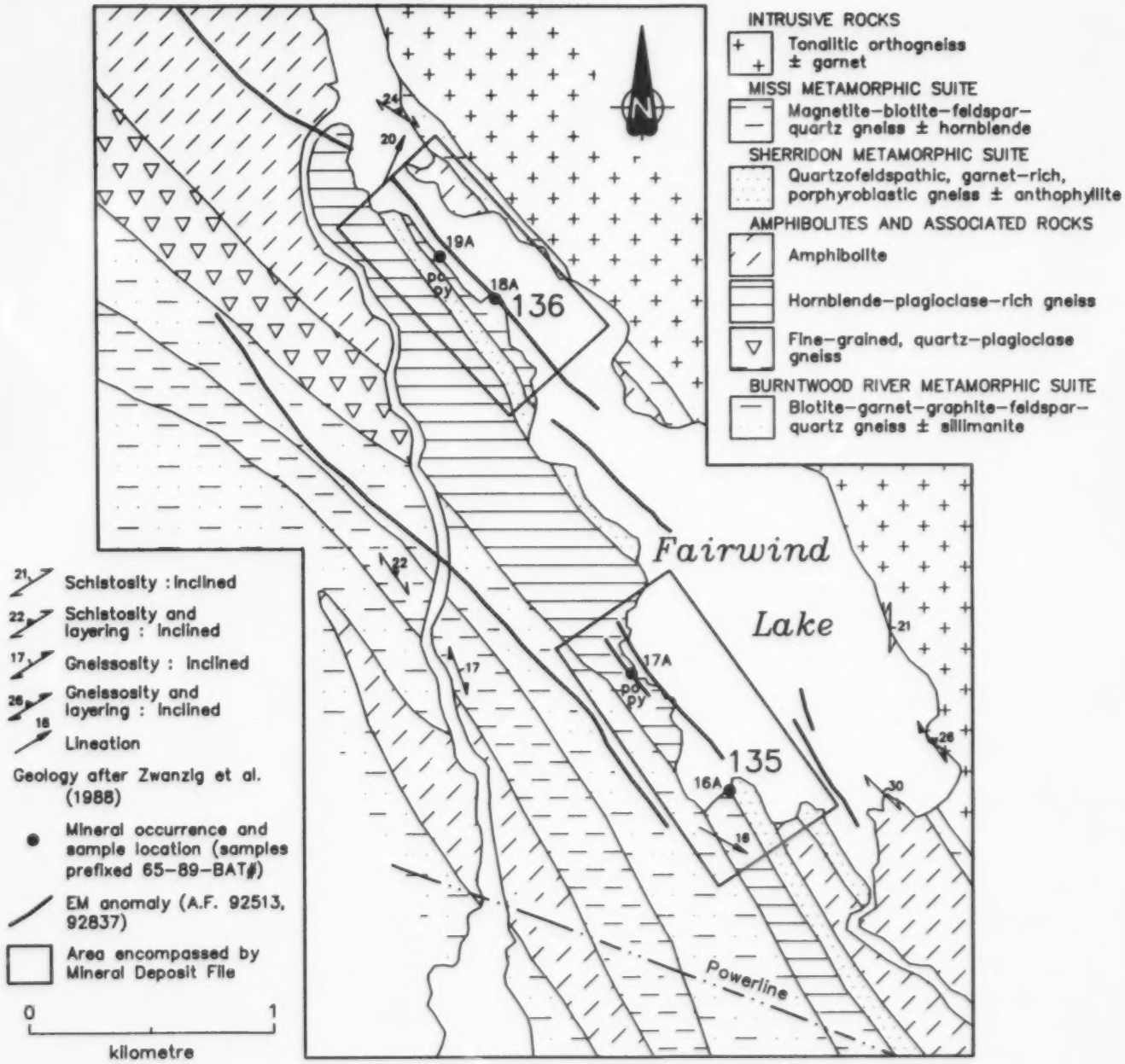


Figure 135-1: General geology, geophysical anomalies and sample locations at occurrences 135 and 136.

LOCATION: 136

NAME:

UTM: 6102419N/398823E

ACCESS: Bush aircraft to Fairwind Lake.

AREA: West-central shore of Fairwind Lake (Fig. 135-1).

AIRPHOTO: A26365-230

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. HBED performed a HLEM survey in the area during the winter of 1959-60 (A.F. 91573). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by prospecting in the area (A.F. 92513). An HLEM (Max Min II) survey performed in 1983 by HBED included the area around the occurrence (A.F. 92837). The occurrence was examined by Zwanzig *et al.* (1988) and Ostry (1989).

GEOLOGICAL SETTING:

The area is underlain by hornblende-plagioclase gneiss (Zwanzig *et al.*, 1988; Fig. 135-1). Ostry (1989) describes the host rocks as calcareous amphibolite with very fine grained siliceous interlayers.

MINERALIZATION:

Minor amounts of disseminated pyrite were documented at two localities (Zwanzig *et al.*, 1988). Ostry (1989) reported up to 3% pyrrhotite that occurs as fine grained blebs and subhedral crystals within the amphibolite. Numerous crosscutting mobilizate veins of quartz-carbonate-fibrous amphibole, 1 to 4 cm wide, contain up to 5% fine- to coarse-grained blebs and subhedral crystals of pyrrhotite.

GEOCHEMICAL DATA:

The results of geochemical analyses of two grab samples, 65-89-BAT-18A and BAT-19A (Fig. 135-1), taken from the mineralized rock are presented in Appendix I. Anomalous concentrations were not reported.

CLASSIFICATION:

Disseminated mineralization - not classified. This may be a chemical sediment type deposit consisting of calcareous sedimentary rock with minor amounts of iron sulphide.

REFERENCES:

Assessment Files 91573, 92513, 92837
Manitoba Energy and Mines, Minerals Division.

Ostry, G.
1989: Mineral investigations in the Kisseynew gneiss terrane; In Manitoba Energy and Mines, Minerals Division, Report of Field Activities, 1989, p. 59-63.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

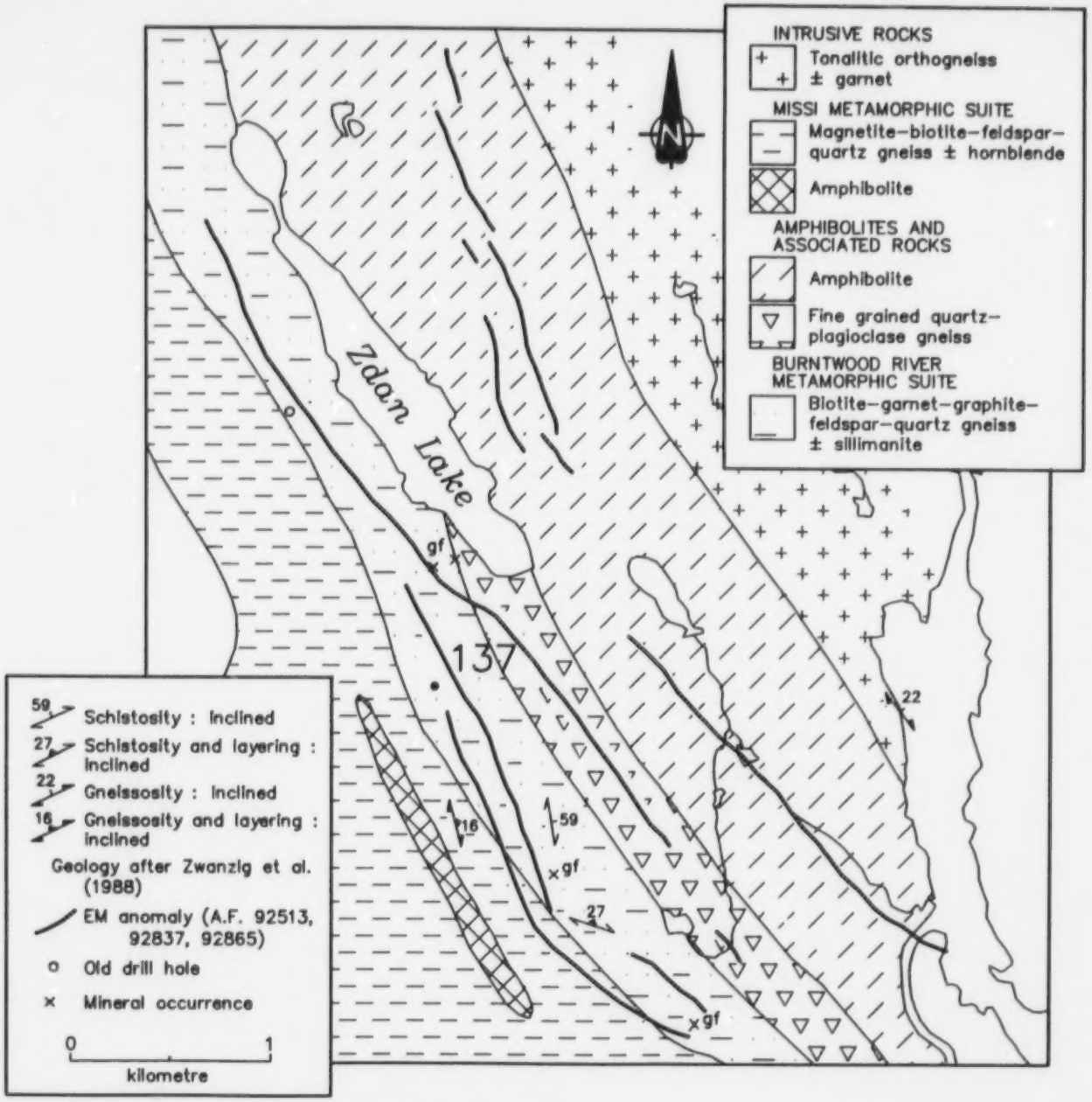


Figure 137-1: General geology and geophysical anomalies at occurrence 137.

LOCATION: 137

NAME:

UTM: 6104228N/396045E

ACCESS: Bush aircraft to Zdan or Fairwind Lakes, and traverse.

AREA: Between Zdan and Fairwind Lakes.

AIRPHOTO: A26365-154, A26368-138

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. A HLEM survey was performed during the winter of 1959-60 by HBED in the area (A.F. 91573). An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. was followed later that year by prospecting in the area (A.F. 92513). A HLEM (Max Min II) survey performed in 1983 by HBED included the area around the occurrence (A.F. 92837, 92865).

GEOLOGICAL SETTING:

The area is underlain by biotite-garnet-feldspar-quartz gneiss ± sillimanite of the Burntwood River Metamorphic Suite and fine grained, quartz-plagioclase gneiss interlayered with amphibolite (Zwanzig *et al.*, 1988; Fig. 137-1).

MINERALIZATION:

Minor amounts of disseminated graphite ± pyrite within greywacke gneiss of the Burntwood River Metamorphic Suite were documented at several sites by Shell. Several long (up to 5 km) EM conductors parallel stratigraphy in the vicinity of these occurrences (A.F. 92513, 92837,92865). Shell located an old DDH site in the vicinity of one of the conductors (A.F. 92513).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment Files 91573, 92513, 92837, 92865
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

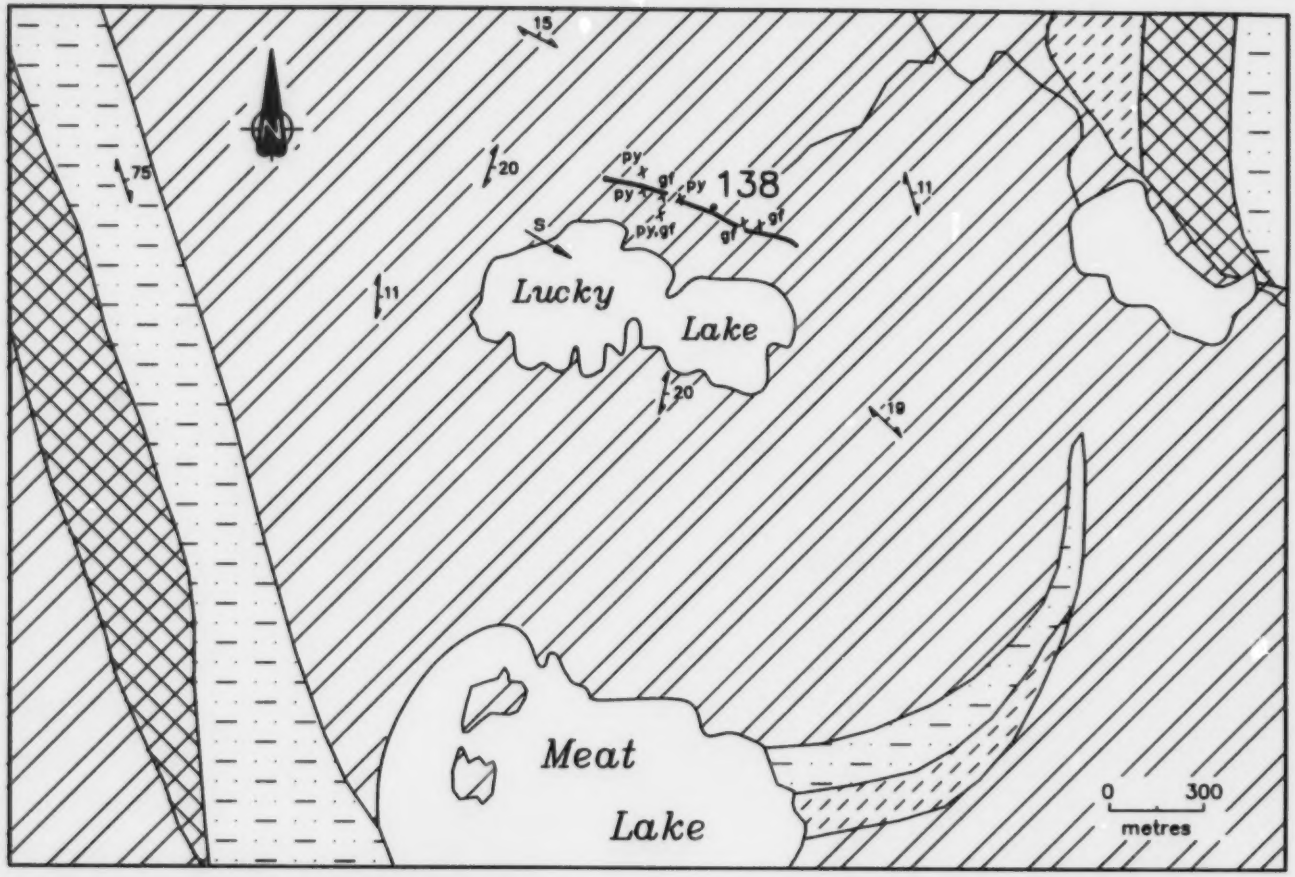


Figure 138-1: General geology and geophysical anomalies at occurrence 138.

LOCATION: 138

NAME:

UTM: 6111176N/386124E

ACCESS: Bush aircraft to Meat Lake and traverse.

AREA: 1.5 km north of Meat Lake.

AIRPHOTO: A26326-43

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1928. An airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. included the area around the occurrence and was followed later that year by geological prospecting (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by quartz-feldspar-garnet-biotite-migmatite ± sillimanite ± cordierite of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 138-1).

MINERALIZATION:

Shell reports several sites of pyrite and graphite mineralization exposed along a 750 m long east-west airborne EM anomaly (A.F. 92513).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. The mineralization probably represents graphite- and iron sulphide-bearing layer(s) within the greywacke gneiss.

REFERENCES:

Assessment File 92513

Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.

1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

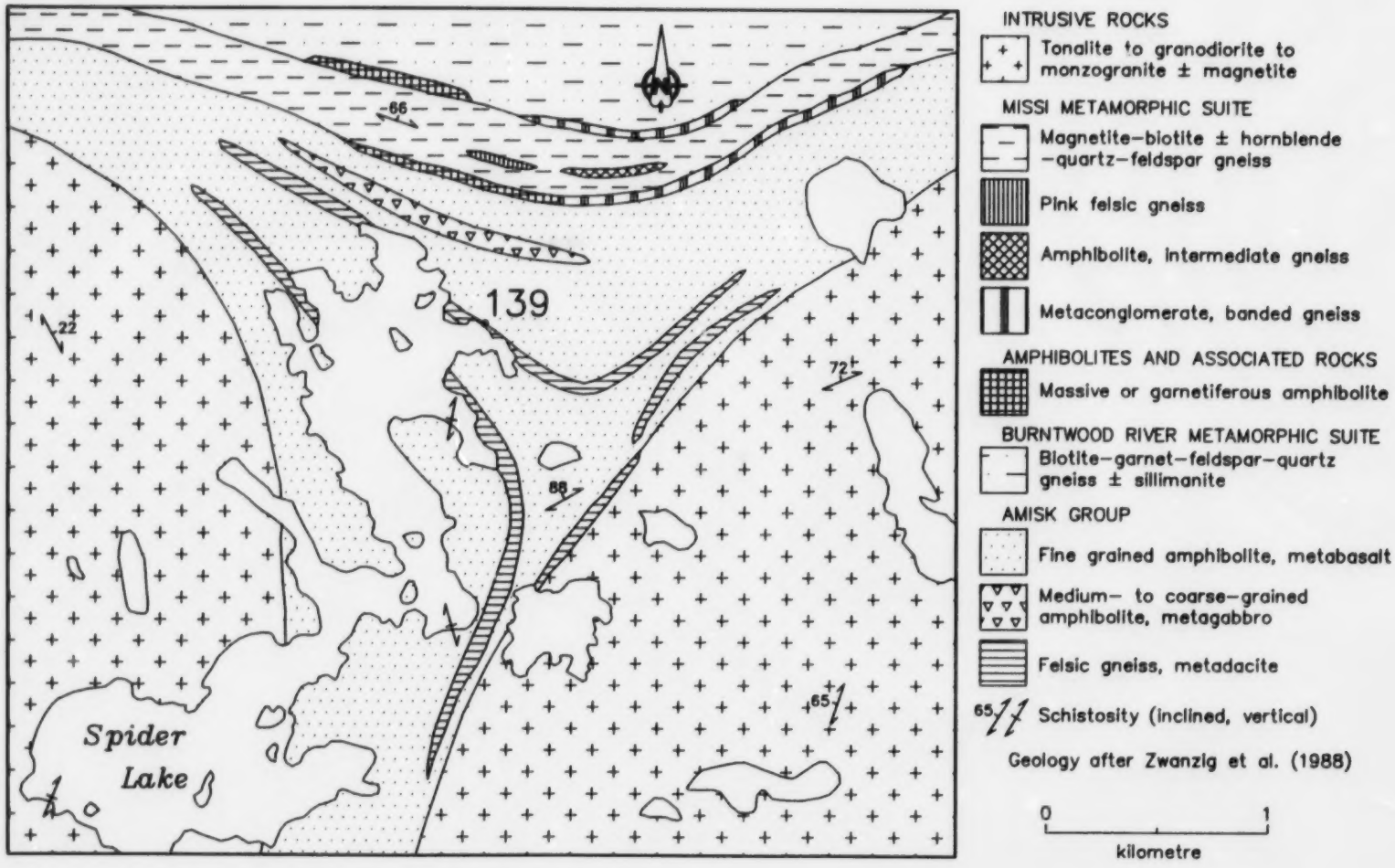


Figure 139-1: Geological setting of occurrence 139.

LOCATION: 139

NAME:

UTM: 6098659N/379996E

ACCESS: Bush aircraft to Spider Lake.

AREA: Northeast shore of Spider Lake.

AIRPHOTO: A26326-244

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. Zwanzig *et al.* (1988) reported the presence of pyrite. The locality was held (1990) by Pioneer Metals Corp. as part of the claim STU 1.

GEOLOGICAL SETTING:

The area is underlain by a thin layer of Amisk Group felsic gneiss and amphibolite (Zwanzig *et al.*, 1988; Fig. 139-1).

MINERALIZATION:

Minor amounts of disseminated pyrite were documented (Zwanzig *et al.*, 1988).

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Zwanzig, H.V., Elias, P. and Arkos, G.

1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

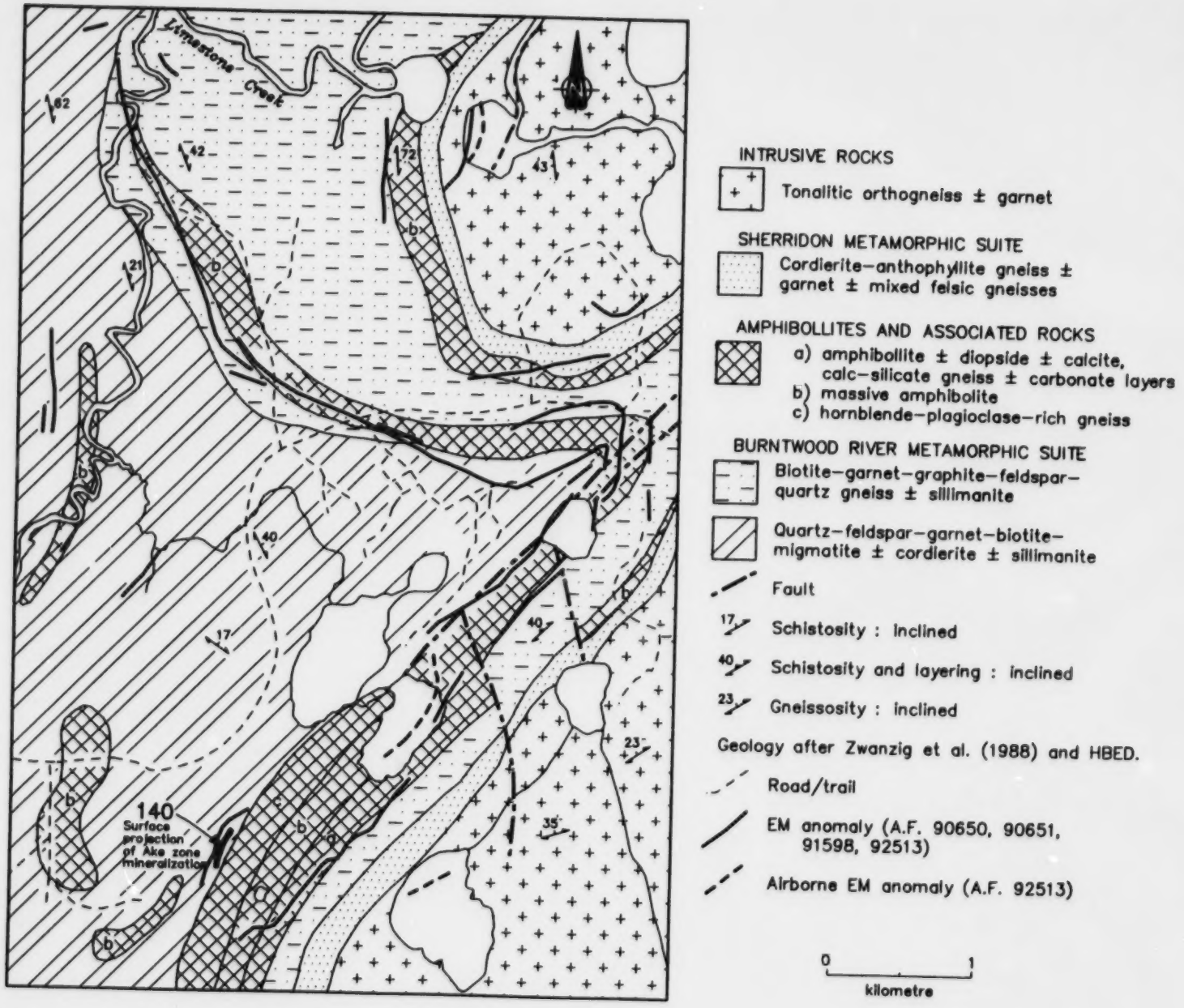


Figure 140-1: General geology and geophysical anomalies at the Ake zone deposit.

LOCATION: 140

NAME: Ake Zone Cu-Zn deposit
UTM: 6113790N/387823E
ACCESS: By logging road from Sherridon, Manitoba, and traverse; or bush aircraft to Batty Lake or Hayhurst Lake, and traverse.

AREA: 3.2 km west of Batty Lake
AIRPHOTO: A26325-137

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1956. Loop-frame EM and geological surveys were performed during 1956-57 by Britannia Mining and Smelting Co. Ltd. (A.F. 90650, 90651). HBED staked ground in 1969 to follow up on untested ground EM anomalies from the Britannia survey and drilled the discovery hole in 1971 (A.T. Baumgartner, HBED, written communication, 1990). The area around the occurrence was included in an airborne EM and magnetometer survey performed in 1980 for Shell Canada Resources Ltd. (A.F. 92513). The occurrence was held (1990) by HBED as part of the claims CB 299 (since 1969) and CB 2985 (since 1971).

GEOLOGICAL SETTING:

The area is underlain by a folded, north-trending sequence of Sherridon Group quartz-rich paragneiss (Robertson, 1953) reinterpreted by Zwanzig *et al.* (1988; Fig. 140-1) as Burntwood River Metamorphic Suite quartz-feldspar-garnet-biotite migmatite ± cordierite ± sillimanite. Mineralization occurs within a schistose quartz-feldspar-biotite ± garnet gneiss that exhibits sericite, chlorite, epidote and sillimanite alteration (A.T. Baumgartner, HBED, written communication, 1990).

MINERALIZATION:

The mineralization comprises well mineralized to near solid pyrrhotite and pyrite layers that contain blebs and stringers of chalcopyrite and subordinate sphalerite (A.T. Baumgartner, HBED, written communication, 1990). The zone is up to 4.6 m thick with an average thickness of approximately 1.5 m. At surface the zone strikes 210°, dips approximately 50° to the west and has a strike length of 183 m. At the 305 m (1000 foot) level the strike has rotated to 270° and the dip has flattened out to less than 10° north. The mineralized zone plunges for at least 915 m at 345° with a variable dip.

GEOCHEMICAL DATA:

Tonnage is not available for the deposit but the dimensions given above would indicate a minimum size of approximately 400,000 tonnes. The mineralized zone contains an average of between 1 and 2% Cu and less than 0.5% zinc (A.T. Baumgartner, HBED, written communication, 1990).

CLASSIFICATION:

Stratabound massive sulphide type deposit; sedimentary rock-associated.

REFERENCES:

A.T. Baumgartner
1990: HBED, written communication.

Robertson, D.S.
1953: Batty Lake Map-Area, Manitoba; Geological Survey of Canada, Memoir 271, 55p.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

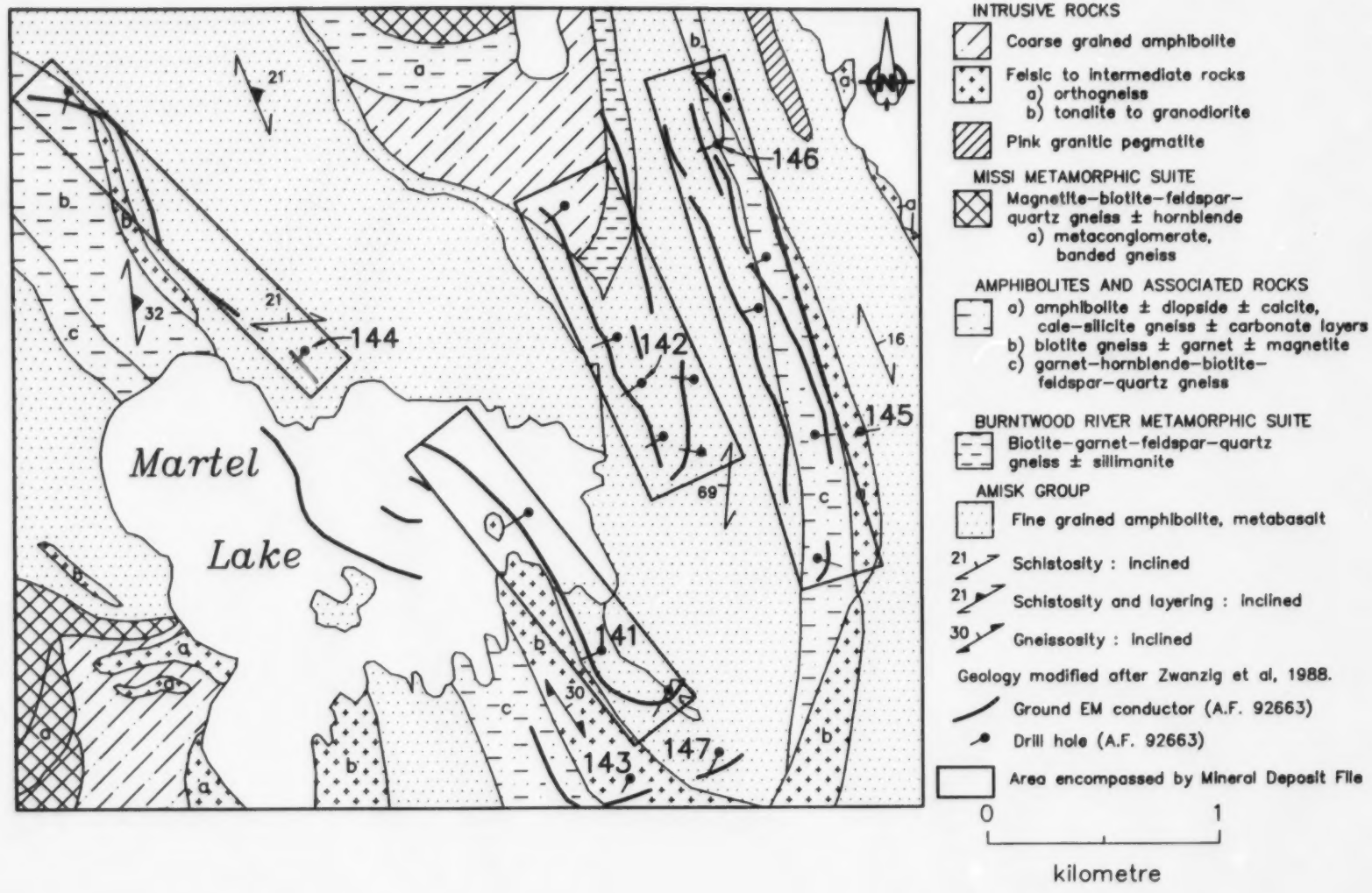


Figure 141-1: General geology, geophysical anomalies and drill hole locations at occurrences 141 to 147.

LOCATION: 141

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6096408N/396616E

ACCESS: Bush aircraft to Martell Lake.

AREA: Martell (*aka* Wood) Lake.

AIRPHOTO: A26325-62, A26365-159, 160, A26368-134

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1948. DDH TUG 44, TUG 56 and TUG 65 were drilled (date unknown; locations in A.F. 92663) by HBED (A.T. Baumgartner, HBED, written communication, 1990) to test an approximately 430 m long EM anomaly. Granges Exploration Aktiebolag performed an HLEM (Max Min II) survey in the area in 1984 (A.F. 92663).

GEOLOGICAL SETTING:

The area is underlain by Amisk Group amphibolite and tonalitic intrusive rock (Zwanzig *et al.*, 1988; Fig. 141-1). The drill holes intersected garnetiferous quartz-plagioclase-hornblende-biotite gneiss. Biotite-hornblende-plagioclase gneiss was also intersected in DDH TUG 56.

MINERALIZATION:

DDH TUG 44 intersected approximately 5.5 m of disseminated to solid pyrrhotite and/or pyrite mineralization within garnetiferous quartz-plagioclase-hornblende-biotite gneiss. Minors amounts of chalcopyrite were noted locally and a solid pyrrhotite and pyrite intersection, approximately 1 m in core length, occurs within this zone. Minor amounts of pyrite and/or pyrrhotite ± chalcopyrite or sphalerite were intersected over core lengths of 30 cm or less, down hole, within the same rock type. A mineralized zone that is approximately 12 m in core length and hosted by garnetiferous quartz-plagioclase-hornblende-biotite gneiss was intersected in DDH TUG 56. This zone contains disseminated to solid iron sulphide mineralization ± minor amounts of chalcopyrite or sphalerite. Several intersections of disseminated to near solid iron sulphide, up to 2 m in core length, and a 46 cm long solid pyrite intersection occur within this zone. A 60 cm long solid pyrrhotite intersection and several occurrences of disseminated pyrite and/or pyrrhotite occur within garnetiferous quartz-plagioclase-hornblende-biotite gneiss in DDH TUG 65.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 92663
Manitoba Energy and Mines, Minerals Division.

A.T. Baumgartner
1990: HBED, written communication.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 142

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6097539N/396832E

ACCESS: Bush aircraft to Martell Lake, and traverse.

AREA: Northeast of Martell (*aka* Wood) Lake.

AIRPHOTO: A26325-62, A26365-159, 160, A26368-134

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1948. DDH TUG 35, TUG 37, TUG 39, TUG 53, TUG 55 and TUG 57 (Fig. 141-1) were drilled (date unknown; locations in A.F. 92663) by HBED (A.T. Baumgartner, HBED, written communication, 1990) to test two anomalies, 335 m and 130 m in length. Granges Exploration Aktiebolag performed an HLEM (Max Min II) survey in the area in 1984 (A.F. 92663).

GEOLOGICAL SETTING:

The area is underlain by Amisk Group amphibolite and coarse grained amphibolitic intrusive rock (Zwanzig *et al.*, 1988; Fig. 141-1). The drill holes intersected garnetiferous quartz-plagioclase-hornblende ± biotite gneiss, garnetiferous hornblende-plagioclase ± biotite gneiss, coarse grained quartz-biotite-plagioclase ± garnet gneiss and granitic to granodioritic gneiss.

MINERALIZATION:

Intersections of disseminated to solid pyrrhotite and/or pyrite were documented in all diamond drill hole logs. These intersections range from on the order of a cm to 4 m (DDH TUG 53) in core length. Up to five individual mineralized sections were recognized in the drill core from DDH TUG 37. Within one of those sections (2 m in core length), a solid pyrite and pyrrhotite layer/vein, 43 cm in core length, contains minor amounts of sphalerite and chalcopyrite. The mineralization is associated with garnetiferous quartz-plagioclase-hornblende-biotite gneiss and less commonly, with biotite-hornblende-plagioclase gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 92663
Manitoba Energy and Mines, Minerals Division.

A.T. Baumgartner
1990: HBED, written communication.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 143

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6095846N/396729E

ACCESS: Bush aircraft to Martell Lake, and traverse.

AREA: East of Martell (*aka* Wood) Lake.

AIRPHOTO: A26325-62, A26365-159, 160, A26368-134

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1948. DDH TUG 46 was drilled (date unknown; location in A.F. 92663) by HBED (A.T. Baumgartner, HBED, written communication, 1990) to test an approximately 125 m long EM anomaly. Granges Exploration Aktiebolag performed an HLEM (Max Min II) survey in the area in 1984 (A.F. 92663).

GEOLOGICAL SETTING:

The area is underlain by tonalite-granodiorite orthogneiss (Zwanzig *et al.*, 1988; Fig. 141-1). The drill hole intersected mica schist, garnetiferous quartz-hornblende-plagioclase gneiss and quartz-biotite-hornblende-plagioclase gneiss.

MINERALIZATION:

A 4.5 m long 'mineralized zone of alteration' is hosted by the mica schist and contains minor amounts of graphite to solid graphite intersections, and/or minor amounts of pyrite and pyrrhotite to near solid pyrite and pyrrhotite intersections. Graphite with minor amounts of pyrite was documented elsewhere in the core.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization is interpreted to be a graphitic sulphide facies iron formation.

REFERENCES:

Assessment File 92663
Manitoba Energy and Mines, Minerals Division.

A.T. Baumgartner
1990: HBED, written communication.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 144

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6097706N/395376E

ACCESS: Bush aircraft to Martell Lake, and traverse.

AREA: Northwest of Martell (*aka* Wood) Lake.

AIRPHOTO: A26325-62, A26365-159, 160, A26368-134

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1948. DDH TUG 40 and TUG 42 were drilled (date unknown; location in A.F. 92663) by HBED (A.T. Baumgartner, HBED, written communication, 1990) to test to test two anomalies, 335 m and 60 m in length. Granges Exploration Aktiebolag performed an HLEM (Max Min II) survey in the area in 1984 (A.F. 92663).

GEOLOGICAL SETTING:

The area is underlain by Amisk Group amphibolite (Zwanzig *et al.*, 1988; Fig. 141-1). The drill holes intersected garnetiferous quartz-hornblende-plagioclase ± biotite gneiss. Chlorite was noted locally in DDH TUG 40.

MINERALIZATION:

Disseminated to solid pyrite and/or pyrrhotite was intersected over a core length of 1.5 m in DDH TUG 40 and two core lengths of approximately 20 cm in DDH 42.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 92663
Manitoba Energy and Mines, Minerals Division.

A.T. Baumgartner
1990: HBED, written communication.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 145

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6097311N/397764E

ACCESS: Bush aircraft to Martell Lake, and traverse.

AREA: East of Martell (*aka* Wood) Lake.

AIRPHOTO: A26325-62, A26365-159, 160, A26368-134

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1948. DDH TUG 31 was drilled (date unknown; location in A.F. 92663) by HBED (A.T. Baumgartner, HBED, written communication, 1990) to test an approximately 60 m long EM anomaly. Granges Exploration Aktiebolag performed an HLEM (Max Min II) survey in the area in 1984 (A.F. 92663).

GEOLOGICAL SETTING:

The area is underlain by tonalite-granodiorite orthogneiss (Zwanzig *et al.*, 1988; Fig. 141-1). The drill hole intersected quartz-plagioclase-biotite ± garnet gneiss, very coarse grained hornblende-biotite-garnet-plagioclase gneiss ± chlorite and hornblende-biotite schist ± chlorite.

MINERALIZATION:

'Scattered' pyrite stringers with or without minor amounts of graphite occur over core lengths of 0.4 and 1 m within quartz-plagioclase-biotite gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Vein type deposit; multiple veins or lenses.

REFERENCES:

Assessment File 92663
Manitoba Energy and Mines, Minerals Division.

A.T. Baumgartner
1990: HBED, written communication.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 146

NAME: (A.F.- Mineralization intersected by diamond drilling)

AREA: Northeast of Martell (*aka* Wood) Lake.

UTM: 6098564N/397170E

AIRPHOTO: A26325-62, A26365-159, 160, A26368-134

ACCESS: Bush aircraft to Martell Lake, and traverse.

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1948. DDH TUG 32 to TUG 34, TUG 36, TUG 38, TUG 41 and TUG 43 (Fig. 141-1) were drilled (date unknown; locations in A.F. 92663) by HBED (A.T. Baumgartner, HBED, written communication, 1990) to test several EM anomalies that range from 30 m to 380 m in length. Granges Exploration Aktiebolag performed an HLEM (Max Min II) survey in the area in 1984 (A.F. 92663).

GEOLOGICAL SETTING:

The area is underlain by amphibolite, garnet-hornblende-biotite-feldspar-quartz gneiss and biotite gneiss ± garnet ± magnetite (Zwanzig *et al.*, 1988; Fig. 141-1). The drill holes intersected quartz-biotite-plagioclase ± hornblende gneiss and garnetiferous hornblende-biotite-plagioclase ± garnet gneiss. Pegmatitic and/or granitic intersections are common in all drill holes.

MINERALIZATION:

Disseminated and/or solid iron sulphide, ± minor amounts of chalcopyrite and/or sphalerite was intersected in DDH TUG 32 to TUG 34, TUG 36 and TUG 38. The mineralized intersections range from a few cm up to 2.5 m in core length. Within these mineralized sections, solid iron sulphide or 'well mineralized' iron sulphide intersections, on the order of cm long, were observed in the drill core from DDH TUG 32, 36 and 38. Disseminated mineralization was intersected in DDH TUG 33 and TUG 34. All mineralization is associated with quartz-biotite-plagioclase ± hornblende ± garnet gneiss. A shear zone, approximately 1.5 m in core length, was intersected in DDH TUG 32. This zone is 'well mineralized' with pyrite, pyrrhotite and trace amounts of sphalerite and chalcopyrite. Mineralization was not observed in drill core from DDH TUG 41 and TUG 43.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 92663
Manitoba Energy and Mines, Minerals Division.

A.T. Baumgartner
1990: HBED, written communication.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

LOCATION: 147

NAME: (A.F.- Mineralization intersected by diamond drilling)

UTM: 6095970N/397107E

ACCESS: Bush aircraft to Martell Lake, and traverse.

AREA: East of Martell (*aka* Wood) Lake.

AIRPHOTO: A26325-62, A26365-159, 160, A26368-134

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1948. DDH TUG 48 was drilled (date unknown; location in A.F. 92663) by HBED (A.T. Baumgartner, HBED, written communication, 1990) to test a one line EM anomaly. Granges Exploration Aktiebolag performed an HLEM (Max Min II) survey in the area in 1984 (A.F. 92663).

GEOLOGICAL SETTING:

The area is underlain by Amisk Group amphibolite (Zwanzig *et al.*, 1988; Fig. 141-1). DDH TUG 48 intersected garnetiferous quartz-biotite-hornblende-plagioclase gneiss and quartz-hornblende-plagioclase gneiss.

MINERALIZATION:

Minor amounts of disseminated pyrite and pyrrhotite were intersected over a core length of 1.2 m within the garnetiferous quartz-biotite-hornblende-plagioclase gneiss. This zone also contains a 46 cm section of solid pyrite and pyrrhotite.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 92663
Manitoba Energy and Mines, Minerals Division.

A.T. Baumgartner
1990: HBED, written communication,

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

APPENDIX I: MULTI-ELEMENT GEOCHEMICAL ROCK ANALYSES

Rock samples were routinely collected by G. Ostry as (1) bulked or composite continuous chip samples over 1 or 2 m intervals from trenches and/or outcrop, or (2) single or multiple 1-2 kg samples from representative mineralized zones in trenches and outcrop. These samples were analyzed by Acme Analytical Laboratories Ltd. (Vancouver) by digesting 0.500 g of rock powder with 3 ml of HCl, HNO_3, H_2O (in the proportions 3:1:2) at 95oC for one hour and then diluting to 10 ml with deionized water. This solution was then analyzed by inductively coupled argon plasma-atomic absorption spectrophotometry (ICP-AAS) for 30 elements. The lower limit of detection (LLD) for Au using a 0.500 g sample aliquot is 3 ppm, which was considered too high for the purposes of this study. Accordingly, a LLD of 1 ppb was attained for Au with a preconcentration of a 10 g sample and AAS finish. All other analytical specifications are given below.

Specifications:

1. Au1: Au by ICP on 10 g sample.
2. Au2: Au determinations were performed by Nuclear Activation Services Limited (Hamilton, Ontario) by fusing 2 g of rock powder with a Pb oxide based flux (fire assay) and digesting this mixture in a nitric acid and aqua regia solution. The solution was made up to 5 ml with distilled water. Au was determined by AAS with a lower detection limit of 1 ppb.
3. Determinations for B2, Te and Se were performed by Barringer Magenta (Rexdale, Ontario) by fusing 0.2 g of rock powder with Na-K carbonate and digesting this mixture in nitric and perchloric acid. The solution was made up to 50 ml with deionized water. The elements were determined by AA hydride generation.
4. All other analyses by ICP on 0.500 g samples after a HCl, HNO_3, H_2O dissolution in the proportions 3:1:2. This digestion is partial for Mn, Fe, Ca, P, La, Cr, Mg, Ba, Ti, B1, W, Na, K, Al.
5. Hg by flameless AAS.

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	Mo (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppb)	Au1 (ppb)	Au2 (ppm)	Ag (ppm)	As (ppm)	Sb (ppm)	Bi (ppm)	Cd (ppm)	Ni (ppm)	Co (ppm)	Fe (%)	Mn (ppm)	Ba (ppm)	B1 (ppm)
63N02-2			42-84-NOK-1A	1	60	2	17		1300	0.1	562	2	2	1	1	25	3.73	282	9	9
	6092016	406060	42-84-NOK-1B	1	18	4	14		160	0.1	142	2	2	1	2	29	1.70	202	10	18
			42-84-NOK-1C	1	2	4	9		350	0.1	467	2	3	1	1	24	1.48	196	7	11
			42-84-NOK-1D						95											
			42-84-NOK-1F	1	37	4	20		47	0.1	195	2	2	1	1	22	3.09	365	11	8
			42-84-NOK-2	1	78	10	17		24000	0.9	31286	48	2	1	1	36	6.91	286	7	11
			42-84-NOK-3	1	109	7	14		4700	0.2	12414	4	2	1	1	36	6.39	268	6	9
			42-84-NOK-3A	1	15	2	11		570	0.1	436	5	2	1	1	59	1.29	180	5	10
			42-84-NOK-3B	1	140	13	15		4300	0.2	22343	7	2	1	1	49	8.20	394	6	10
			42-84-NOK-3C	1	108	7	12		7000	0.8	23600	2	2	1	1	47	7.69	261	6	10
			42-84-NOK-4A						8											
			42-84-NOK-4B	1	5	3	38		260	0.1	55	2	2	1	1	35	1.99	259	8	11
			42-84-NOK-4C						3											
			42-84-NOK-5	1	10	11	10		2300	0.1	7170	3	2	1	1	24	2.90	375	5	11
			42-84-NOK-5A						20											
			42-84-NOK-6	1	112	5	23		23	0.1	10	2	2	1	4	31	3.47	351	8	9
			42-84-NOK-7A						300											
			42-84-NOK-7B						11											
			42-84-NOK-7E						15											
			42-84-NOK-7G						17											
			42-84-NOK-7I						12											
			42-84-NOK-8	1	173	15	14		27	0.1	3	2	2	1	38	13	0.81	146	11	15
			42-84-NOK-9	1	32	2	4		10	0.2	12	2	2	1	13	7	0.31	59	9	16
			42-85-NOK-2A	1	12	2	4	2		0.1	4	3	2	1	7	2	1.16	185	7	6
			42-85-NOK-3A	1	28	4	14	3		0.2	4	2	2	1	56	9	1.58	266	16	14
			42-85-NOK-3B	1	22	2	12	44		0.1	135	2	2	1	10	6	4.59	428	77	8
			42-85-NOK-3C	1	16	2	12	40		0.2	124	3	2	1	8	6	3.89	368	29	7
			42-85-NOK-3D	1	46	4	9	32000		0.7	22540	13	2	1	7	9	6.23	319	12	6
			42-85-NOK-3E	1	17	2	21	85		0.2	313	2	2	1	7	10	8.60	474	28	2
			42-85-NOK-3F	1	27	3	9	7820		0.1	11408	4	2	1	5	12	6.03	294	14	6
			42-85-NOK-3G	1	9	2	12	90		0.1	53	2	2	1	4	5	3.58	392	30	10
			42-85-NOK-3H	1	14	2	7	27		0.3	38	2	2	1	8	3	2.10	306	6	9
			42-85-NOK-4A	2	71	2	18	24		0.1	5	3	2	1	45	9	2.48	313	32	6
			42-85-NOK-4B	2	65	6	9	75		0.1	101	2	2	1	9	4	5.89	498	6	14

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	Mo (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppb)	Au1 (ppb)	Au2 (ppm)	Ag (ppm)	As (ppm)	Sb (ppm)	Bi (ppm)	Cd (ppm)	Ni (ppm)	Co (ppm)	Fe (%)	Mn (ppm)	Ba (ppm)	B1 (ppm)
			42-85-NOK-4C	2	84	4	8	215		0.1	304	2	2	1	11	5	6.84	324	6	10
			42-85-NOK-4D	2	54	3	12	195		0.1	75	2	3	1	17	4	5.84	386	14	10
			42-85-NOK-5	1	43	8	4	21		0.2	6	2	2	1	22	4	0.82	114	12	12
			42-85-NOK-6	2	20	3	8	2		0.3	2	2	2	1	14	7	3.36	293	120	9
			42-85-NOK-7	1	102	15	10	11		0.1	6	2	2	1	15	7	1.65	283	7	14
			42-85-NOK-8	1	11	18	5	2		0.1	4	2	2	1	19	4	1.03	161	20	8
			42-85-NOK-9	1	36	7	7	4		0.1	3	2	2	1	37	6	1.02	156	6	11
			42-85-NOK-10	1	61	7	8	2		0.1	2	4	2	1	51	8	1.29	164	9	11
			42-85-NOK-11A	2	33	2	10	80		0.1	68	2	2	1	11	7	2.94	405	11	14
			42-85-NOK-11B	2	72	167	241	1820		0.3	6162	2	2	1	8	19	6.84	433	10	13
			42-85-NOK-11C	1	36	3	10	150		0.2	204	2	2	1	8	5	4.27	348	5	12
			42-85-NOK-11D	2	23	4	12	53		0.2	41	2	2	1	9	4	3.10	384	9	11
			42-85-NOK-12	1	36	15	6	41		0.1	6	2	2	1	19	5	1.15	160	24	10
			42-85-NOK-14	1	31	10	104	2		0.1	2	4	2	1	22	9	3.06	133	289	12
			42-85-NOK-15	1	18	2	14	2		0.1	3	2	2	1	4	7	2.81	368	10	8
			42-85-NOK-16	1	15	2	6	5		0.1	27	2	2	1	8	4	2.09	216	11	10
			42-85-NOK-17	1	9	2	12	14		0.1	26	3	2	1	5	6	3.07	485	15	11
			42-85-NOK-18	1	43	4	28	21		0.1	37	2	2	1	6	10	6.34	556	44	8
			42-85-NOK-19	1	19	10	9	3		0.2	2	2	2	1	24	6	1.20	194	12	8
			42-85-NOK-20	1	158	7	15	5		0.1	2	2	2	1	21	5	1.37	194	33	7
			42-85-NOK-21	1	187	3	16	46		0.1	9	3	2	1	8	18	4.12	334	27	7
			42-85-NOK-22	1	64	2	10	115		0.1	50	4	2	1	9	4	2.31	222	16	3
			42-85-NOK-22A	2	269	2	10	795		0.1	1991	4	2	1	9	3	3.61	243	13	8
			42-85-NOK-22B	1	17	2	5	15		0.1	22	2	3	1	12	5	2.06	239	15	5
			42-85-NOK-23	1	194	13	24	8		0.1	4	3	2	1	57	8	1.51	215	14	19
			42-85-NOK-24	1	107	10	5	11		0.1	7	4	2	1	12	3	0.91	140	18	15
			42-85-NOK-25	1	329	11	7	2		0.1	4	2	2	1	15	5	1.87	207	14	18
			42-85-NOK-26	1	259	18	78	1		0.2	8	3	2	1	15	18	3.47	454	15	7
			42-85-NOK-27	1	123	2	32	1		0.1	2	2	2	1	12	12	2.17	216	10	6
			42-85-NOK-28	1	11	5	11	2		0.1	4	2	2	1	6	6	1.89	207	10	7
			42-85-NOK-29	1	174	8	13	70		0.1	9	5	2	1	8	5	6.16	347	9	9
			42-85-NOK-29A	2	26	2	6	150		0.1	13	2	2	1	14	3	2.74	331	10	8
63N02-4			42-85-K1D	1	56	2	16	4600		0.5	7453	34	12	1	11	20	5.98	430	8	2
			42-85-K1E	3	64	2	8	680		0.1	132	9	3	1	13	18	4.11	326	89	3

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	Mo (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppb)	Au1 (ppb)	Au2 (ppm)	Ag (ppm)	As (ppm)	Sb (ppm)	Bi (ppm)	Cd (ppm)	Ni (ppm)	Co (ppm)	Fe (%)	Mn (ppm)	Ba (ppm)	B1 (ppm)
			42-85-K4.1	6	141	10	14	90		0.7	70	2	4	1	14	6	9.55	537	6	36
			42-85-K4.2	3	24	2	9	3		0.2	17	2	2	1	12	4	3.47	307	9	11
			42-85-K4.3	1	247	4	15	60		0.1	29	2	2	1	6	30	6.38	677	5	14
			42-85-K4.4	2	31	5	18	4		0.1	7	2	3	1	7	12	4.25	513	6	2
			42-85-K4.5	2	41	2	13	10		0.4	6	2	3	1	10	21	4.07	369	9	4
			42-85-K4.6	1	196	3	19	100		0.4	13	2	2	1	8	20	6.18	545	12	8
			42-85-K4.7	3	94	3	15	27		0.3	8	4	2	1	12	26	4.78	534	5	6
			42-85-K4.8	2	23	3	13	2		0.1	8	2	2	1	9	10	3.25	350	7	3
			42-85-KS/50-51	2	23	2	7	2		0.2	23	2	3	1	10	3	2.77	280	10	10
			42-85-K9.10	2	106	2	14	1		0.1	3	2	3	1	18	9	2.83	338	6	7
			42-85-K10.10	1	152	2	6	5		0.1	2	2	2	1	13	8	1.66	204	19	10
			42-85-K13.10	1	16	2	8	1		0.1	5	2	2	1	4	6	2.38	301	5	5
			42-85-K13.11	4	58	7	32	15		0.2	54	4	2	1	13	14	11.57	1015	21	46
			42-85-K13.12	2	31	3	14	3		0.2	9	2	2	1	6	3	5.37	321	11	5
			42-85-K13.13	2	48	2	18	1		0.1	2	2	4	1	10	5	2.73	150	351	2
			42-85-K13.14	1	90	2	11	3		0.1	16	2	3	1	6	3	3.27	464	7	2
			42-85-K14.10	2	196	2	5	2		0.1	2	2	2	1	9	3	1.03	121	8	7
			42-85-K36.10	2	80	2	15	13		0.1	8	2	3	1	18	9	2.68	374	8	8
			42-85-K37.10	1	327	3	14	7		0.1	2	2	3	1	15	20	3.34	352	7	6
			42-85-K37.11	1	293	2	14	2		0.1	2	2	3	1	10	14	2.71	347	4	5
			42-85-K43.10	4	59	1182	436	42		1.8	1773	2	3	1	16	3	3.31	256	41	5
			42-85-K43.11	4	66	30	7	16		0.3	11	2	2	1	12	1	3.22	177	19	2
			42-85-K43.12	2	82	14	90	4		0.1	2	2	2	1	17	17	5.65	662	138	6
			42-85-K50.10	2	17	2	11	110		0.1	25	2	2	1	6	6	3.35	358	9	5
			42-85-K51.10	3	32	2	6	1130		0.1	58	2	2	1	10	3	3.57	298	11	10
			42-85-K55.10	4	33	6	11	160		0.1	680	2	2	1	13	4	4.65	422	32	5
			42-85-K55.11	2	80	2	20	1		0.1	8	2	2	1	7	17	4.32	447	7	5
			42-85-K224.2	1	56	8	5	2200		0.5	24678	2	5	1	5	58	12.42	198	5	41
			42-85-K561	3	130	2	7	150		0.1	6859	2	3	1	9	17	6.17	278	4	5
			42-85-K610	1	99	2	9	1		0.1	10	2	2	1	23	7	1.50	223	7	4
			42-85-K611	1	17	2	9	1		0.1	25	2	2	1	8	2	3.45	355	7	2
			42-85-K612	1	232	2	23	1		0.1	5	2	2	1	10	25	5.30	650	4	5
			42-85-K613	2	15	2	7	8		0.4	2	2	2	1	23	5	1.44	215	11	14
			42-85-K614	1	159	2	14	1		0.3	4	2	2	1	14	5	1.84	225	8	6

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	Mo (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppb)	Au1 (ppb)	Au2 (ppm)	Ag (ppm)	As (ppm)	Sb (ppm)	Bi (ppm)	Cd (ppm)	Ni (ppm)	Co (ppm)	Fe (%)	Mn (ppm)	Ba (ppm)	B1 (ppm)
			42-85-K615	2	19	3	11	3		0.1	16	3	2	1	10	3	3.26	301	22	5
			42-85-K616	1	46	7	13	1		0.1	2	2	2	1	9	15	3.93	417	5	2
			42-85-K617	2	48	2	8	2		0.4	3	2	2	1	27	7	1.41	214	9	6
			42-85-K618	1	731	2	12	7		0.3	6	6	2	1	15	10	2.13	257	8	5
			42-85-K619	2	15	4	10	8		0.1	8	3	3	1	7	3	3.01	334	9	3
			42-85-K620	1	163	2	13	1		0.1	2	2	2	1	8	14	2.31	289	5	2
			42-85-K621	2	207	7	6	6		0.1	3	2	2	1	15	4	1.10	156	16	17
			42-85-TR-8	2	19	5	10	4		0.1	6	2	3	1	8	3	3.35	309	10	3
			42-85-TR-9	2	16	4	6	1		0.2	30	2	2	1	8	3	2.15	230	6	3
			42-85-TR-10	1	17	3	11	3		0.1	64	2	2	1	6	4	3.52	301	6	2
			42-85-TR-11	2	82	4	11	970		0.1	24957	2	3	1	5	34	6.54	334	7	4
			42-85-TR-12	3	59	5	22	60		0.1	29	2	3	1	4	10	5.55	578	17	31
63N02-71			65-86-GC-WL-127	10	98	14	65	7		0.3	10	2	2	1	40	9	6.03	307	22	20
63N02-73			65-86-GC-WL-126-1	6	104	9	34	10		0.2	16	2	2	1	24	7	5.49	320	31	10
			65-86-GC-WL-126-2	13	153	8	23	12		0.4	8	2	2	1	34	6	11.30	255	19	2
63N02-76			65-86-GC-WL-20A	3	44	6	101	1		0.1	3	2	2	1	12	3	4.34	551	13	6
			65-86-GC-WL-20B	6	89	11	96	1		0.3	2	2	2	1	39	8	9.52	572	10	6
			65-86-GC-WL-20C	8	73	13	36	1		0.1	2	2	2	1	21	3	4.15	366	4	7
			65-86-GC-WL-20D	2	49	3	23	1		0.1	2	2	2	1	38	8	2.09	259	14	11
			65-86-GC-WL-20E	3	23	4	51	1		0.2	2	2	2	1	32	14	3.97	542	4	6
			65-86-GC-WL-20F	3	23	2	60	3		0.1	2	2	2	1	8	1	2.47	243	18	8
			65-86-GC-WL-20G	5	84	6	144	5		0.2	4	2	2	1	48	9	5.36	261	13	9
			65-86-GC-WL-20H	6	78	14	90	1		0.2	2	2	2	1	18	6	9.82	548	25	6
			65-86-GC-WL-20I	5	76	13	100	5		0.2	3	2	2	1	19	6	7.92	536	60	12
			65-86-GC-WL-67-1	6	205	18	103	8		0.5	11	2	2	1	49	6	13.65	342	14	2
			65-86-GC-WL-67-2	6	181	23	67	25		0.3	13	2	2	1	39	5	23.32	187	9	4
			65-86-GC-WL-67-3	9	115	22	146	16		0.3	11	2	2	1	29	4	15.07	245	21	4
			65-86-GC-WL-67-4	7	186	18	198	19		0.4	11	2	2	1	72	9	18.22	270	10	5
			65-86-GC-WL-67-5	7	83	8	52	5		0.2	12	2	2	1	45	16	3.74	423	14	9
			65-86-GC-WL-67-6	4	33	2	8	2		0.1	6	2	2	1	20	5	1.85	217	7	6
63N02-88			65-89-BAT-23A	2	37	4	15	4		0.1	2	2	2	1	9	4	1.72	58	89	6
63N02-99			65-89-BAT-13	1	107	2	19	1		0.1	2	2	2	1	8	4	2.11	105	43	2
63N02-102			65-89-BAT-12A	5	130	6	34	4		0.1	3	2	2	1	21	12	5.60	127	230	12
63N02-104			65-89-BAT-14A	2	110	14	16	1		0.1	3	2	2	1	12	7	2.24	158	37	19

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	Mo (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppb)	Au1 (ppb)	Au2 (ppm)	Ag (ppm)	As (ppm)	Sb (ppm)	Bi (ppm)	Cd (ppm)	Ni (ppm)	Co (ppm)	Fe (%)	Mn (ppm)	Ba (ppm)	B1 (ppm)
63N02-105			65-89-BAT-15A	2	51	9	56	2		0.1	4	2	2	1	11	13	5.19	442	135	14
			65-89-BAT-15C	2	181	17	58	29		0.1	3	2	2	1	12	15	4.99	361	40	15
			65-89-BAT-15E	3	187	7	201	4		0.2	3	2	3	1	28	8	5.89	292	23	13
63N02-108			65-89-BAT-1A	8	96	14	81	4		0.1	11	2	2	1	27	7	4.68	306	154	4
			65-89-BAT-1B	6	66	6	87	1		0.1	5	2	2	1	22	12	4.75	283	323	17
			65-89-BAT-1C	5	79	8	75	2		0.1	9	2	2	1	17	10	4.41	246	225	7
63N02-111			65-87-BATGC-2	2	37	2	21	1		0.1	2	2	3	1	7	9	2.23	245	16	5
			65-87-BATGC-3	5	417	2	57	8		0.5	8	2	2	1	91	21	13.26	226	19	6
			65-87-BATGC-4	1	67	11	10	1		0.2	2	4	2	1	17	7	1.40	173	35	2
			65-87-BATGC-7	1	94	3	19	1		0.1	2	2	2	1	22	10	2.35	278	32	9
			65-87-BATGC-8A	5	84	20	218	1		0.4	2	2	2	1	41	10	6.42	230	27	10
			65-87-BATGC-8B	7	92	12	37	1		0.1	7	2	2	1	13	6	9.79	469	42	2
			65-87-BATGC-9A	3	330	9	100	1		0.2	2	2	2	1	91	20	10.11	147	22	3
			65-87-BATGC-9B	4	372	7	83	1		0.1	5	2	5	1	65	14	10.06	262	19	2
			65-87-BATGC-9C	3	151	7	90	8		0.3	11	2	2	1	29	10	9.38	165	88	2
			65-87-BATGC-9D	3	86	8	222	1		0.1	2	2	2	1	27	11	6.71	196	87	6
			65-87-BATGC-9E	2	167	20	120	1		0.4	2	2	7	1	45	11	6.76	295	53	9
			65-87-BATGC-9F	2	104	8	183	1		0.1	2	2	2	1	32	10	5.70	395	31	4
			65-87-BATGC-10	1	84	6	8	1		0.1	2	2	2	1	12	4	1.30	178	59	2
			65-87-BATGC-12	1	238	8	14	1		0.1	2	2	2	1	17	6	1.42	167	20	5
63N02-113			65-87-BATGC-1	4	81	4	64	2		0.1	2	2	2	1	17	7	5.02	303	124	5
63N02-116			65-89-BAT-24	3	80	3	10	3		0.1	2	2	2	1	14	12	3.32	109	124	12
63N02-118			65-89-BAT-5	7	269	8	96	10		0.5	4	2	4	1	71	17	7.02	150	14	2
63N02-119			65-87-BATGC-14A	1	100	5	62	2		0.1	5	2	6	1	59	13	3.22	295	22	2
			65-87-BATGC-14B	3	363	3	240	1		0.1	2	2	2	1	26	8	4.53	137	69	17
			65-87-BATGC-14C	4	100	5	69	1		0.1	2	2	2	1	20	15	6.35	397	366	4
			65-89-BAT-25A	4	142	9	21	4		0.1	2	2	2	1	16	9	4.70	98	243	2
			65-89-BAT-27A	2	109	5	50	7		0.1	2	2	2	1	8	17	4.44	123	131	10
63N02-121			65-89-BAT-6A	4	550	7	32	11		0.1	3	2	2	1	28	39	8.80	137	40	4
			65-89-BAT-6C	3	198	11	5	3		0.2	2	2	2	1	16	13	3.08	70	20	2
63N02-124			65-89-BAT-26A	5	115	6	14	4		0.1	3	2	2	1	13	12	3.69	116	72	15
63N02-125			65-89-BAT-4	11	275	2	8	1		0.1	2	2	2	1	11	9	4.15	79	15	4
63N02-127			65-89-BAT-3A	3	120	7	36	2		0.2	5	2	3	1	18	7	6.13	88	31	2
			65-89-BAT-3C	13	248	11	201	10		0.4	5	2	3	2	97	20	8.13	237	8	3

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	Mo (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppb)	Au1 (ppb)	Au2 (ppm)	Ag (ppm)	As (ppm)	Sb (ppm)	Bi (ppm)	Cd (ppm)	Ni (ppm)	Co (ppm)	Fe (%)	Mn (ppm)	Ba (ppm)	B1 (ppm)
63N02-128			65-89-BAT-2A	3	295	9	57	8		0.1	10	2	2	1	28	18	7.39	229	73	11
63N02-135			65-89-BAT-16A	2	82	9	20	5		0.1	7	2	2	1	10	5	1.74	266	28	7
			65-89-BAT-17A	7	119	10	83	3		0.1	7	2	2	1	36	12	5.10	105	16	9
63N02-136			65-89-BAT-18A	15	124	15	130	5		0.2	5	2	2	1	41	11	5.50	253	38	14
			65-89-BAT-19A	2	225	12	8	6		0.1	6	2	4	1	62	24	2.63	169	48	10

nd = not detected; a blank means not determined

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	B2 (ppm)	Cr (ppm)	Mg (%)	W (ppm)	U (ppm)	Th (ppm)	P (%)	La (ppm)	V (ppm)	Ti (%)	Na (%)	K (%)	Ca (%)	Sr (ppm)	Al (%)	Hg (ppb)	Se (ppm)	Te (ppm)
63N02-2			42-84-NOK-1A	17	1	0.12	211	5	4	0.090	10	1	0.06	0.09	0.04	1.15	8	0.55	20	0.2	0.2
	6092016	406060	42-84-NOK-1B	54	1	0.24	254	5	4	0.060	10	1	0.10	0.06	0.05	1.74	21	0.61	10	nd	nd
			42-84-NOK-1C	40	1	0.13	223	5	1	0.080	5	1	0.08	0.07	0.03	1.86	18	0.31	5	nd	nd
			42-84-NOK-1D																		
			42-84-NOK-1F	47	1	0.25	133	5	1	0.090	2	18	0.10	0.12	0.03	0.86	7	0.71	5	0.2	nd
			42-84-NOK-2	34	2	0.24	1421	5	1	0.200	6	6	0.03	0.04	0.01	1.05	13	0.36	40	1.4	12.0
			42-84-NOK-3	31	1	0.18	885	5	1	0.170	3	7	0.05	0.06	0.02	0.87	10	0.48	10	0.2	2.9
			42-84-NOK-3A	42	3	0.06	1555	5	1	0.060	4	9	0.06	0.04	0.02	1.21	15	0.29	5	nd	nd
			42-84-NOK-3B	31	1	0.25	364	5	2	0.220	5	7	0.07	0.07	0.01	0.79	10	0.41	5	1.2	11.2
			42-84-NOK-3C	41	1	0.10	181	5	3	0.270	3	5	0.05	0.05	0.01	1.05	11	0.27	20	0.9	8.0
			42-84-NOK-4A																		
			42-84-NOK-4B	37	2	0.20	318	10	3	0.070	7	1	0.17	0.15	0.07	2.53	30	0.67	5	nd	nd
			42-84-NOK-4C																		
			42-84-NOK-5	26	1	0.13	284	5	2	0.070	6	2	0.05	0.06	0.02	2.38	24	0.23	5	0.2	1.0
			42-84-NOK-5A																		
			42-84-NOK-6	40	1	0.42	71	5	1	0.040	2	37	0.17	0.16	0.05	1.11	8	0.79	5	0.5	nd
			42-84-NOK-7A																		
			42-84-NOK-7B																		
			42-84-NOK-7E																		
			42-84-NOK-7G																		
			42-84-NOK-7I																		
			42-84-NOK-8	37	95	0.87	64	5	1	0.020	2	17	0.03	0.21	0.02	1.77	31	2.19	5	nd	nd
			42-84-NOK-9	45	50	0.44	34	8	1	0.010	2	7	0.01	0.27	0.03	3.45	118	4.27	5	nd	nd
			42-85-NOK-2A		9	0.24	1	5	3	0.170	6	27	0.12	0.12	0.03	1.32	8	0.37			
			42-85-NOK-3A		165	1.48	1	5	1	0.010	2	28	0.04	0.21	0.06	2.08	37	2.14			
			42-85-NOK-3B		13	0.24	2	5	2	0.060	5	3	0.09	0.06	0.10	1.86	10	0.97			
			42-85-NOK-3C		9	0.07	2	5	2	0.090	6	2	0.05	0.07	0.04	1.60	14	0.27			
			42-85-NOK-3D		11	0.06	252	5	1	0.100	2	6	0.02	0.04	0.03	0.71	8	0.27			
			42-85-NOK-3E		7	0.09	5	5	2	0.160	7	2	0.08	0.07	0.07	1.29	12	0.39			
			42-85-NOK-3F		6	0.07	79	5	1	0.280	3	2	0.05	0.07	0.02	1.26	15	0.29			
			42-85-NOK-3G		6	0.10	17	5	1	0.180	4	1	0.10	0.09	0.09	2.63	19	0.46			
			42-85-NOK-3H		9	0.12	6	5	1	0.050	6	1	0.08	0.07	0.05	2.72	15	0.40			
			42-85-NOK-4A		75	0.86	1	5	1	0.020	2	32	0.03	0.07	0.03	0.73	6	0.74			
			42-85-NOK-4B		13	0.17	2	5	3	0.040	16	2	0.04	0.08	0.03	0.64	9	0.54			
			42-85-NOK-4C		13	0.14	1	5	3	0.060	9	3	0.05	0.06	0.03	0.21	4	0.49			
			42-85-NOK-4D		12	0.20	1	5	3	0.090	6	2	0.04	0.05	0.04	0.77	11	0.81			
			42-85-NOK-5		68	0.51	2	5	1	0.010	2	9	0.01	0.19	0.04	3.30	86	3.35			
			42-85-NOK-6		20	1.01	1	5	4	0.180	12	74	0.16	0.16	0.30	1.56	19	1.09			
			42-85-NOK-7		8	0.86	3	5	1	0.010	2	28	0.03	0.69	0.03	4.89	79	4.89			
			42-85-NOK-8		36	0.64	5	5	1	0.010	2	17	0.01	0.60	0.02	7.59	150	7.03			

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	B2 (ppm)	Cr (ppm)	Mg (%)	W (ppm)	U (ppm)	Th (ppm)	P (%)	La (ppm)	V (ppm)	Ti (%)	Na (%)	K (%)	Ca (%)	Sr (ppm)	Al (%)	Hg (ppb)	Se (ppm)	Te (ppm)
			42-85-NOK-9		123	0.97	2	5	1	0.010	2	14	0.02	0.11	0.03	2.85	58	2.74			
			42-85-NOK-10		92	0.87	2	5	1	0.020	2	20	0.03	0.21	0.03	1.86	71	2.17			
			42-85-NOK-11A		12	0.16	5	5	2	0.180	10	5	0.14	0.11	0.04	2.73	22	0.47			
			42-85-NOK-11B		10	0.13	1	5	2	0.060	10	3	0.04	0.08	0.02	0.43	7	0.54			
			42-85-NOK-11C		9	0.11	1	5	2	0.050	7	2	0.07	0.08	0.02	0.96	10	0.35			
			42-85-NOK-11D		12	0.14	3	5	1	0.080	6	2	0.16	0.12	0.05	1.93	17	0.51			
			42-85-NOK-12		48	0.59	2	5	1	0.010	2	14	0.02	0.63	0.04	6.29	149	6.18			
			42-85-NOK-14		63	1.18	1	5	2	0.070	7	90	0.21	0.13	0.85	0.29	19	1.68			
			42-85-NOK-15		3	0.26	1	5	1	0.080	2	7	0.20	0.13	0.03	1.18	14	0.61			
			42-85-NOK-16		10	0.19	1	5	2	0.050	4	2	0.12	0.10	0.05	1.27	12	0.43			
			42-85-NOK-17		7	0.17	1	5	1	0.190	4	2	0.18	0.15	0.05	2.22	17	0.56			
			42-85-NOK-18		6	0.15	3	5	1	0.280	4	2	0.11	0.15	0.06	1.53	12	0.66			
			42-85-NOK-19		70	0.79	2	5	1	0.010	2	21	0.03	0.53	0.04	2.99	75	3.05			
			42-85-NOK-20		73	0.73	1	5	1	0.040	2	25	0.06	0.22	0.08	2.02	63	2.12			
			42-85-NOK-21		6	0.40	11	5	1	0.020	2	76	0.24	0.18	0.05	1.12	17	0.78			
			42-85NOK-22		9	0.10	1	5	3	0.050	10	7	0.06	0.07	0.03	0.45	4	0.24			
			42-85NOK-22A		10	0.07	19	5	3	0.030	12	9	0.07	0.05	0.04	0.27	5	0.29			
			42-85NOK-22B		13	0.42	12	5	4	0.130	12	40	0.08	0.06	0.10	1.51	8	0.50			
			42-85NOK-23		97	0.94	2	5	1	0.010	2	24	0.04	0.41	0.05	3.34	88	3.59			
			42-85NOK-24		16	0.53	1	5	1	0.010	2	14	0.02	0.79	0.04	5.22	111	5.68			
			42-85NOK-25		14	0.47	2	5	1	0.010	2	58	0.03	0.81	0.04	3.92	92	4.65			
			42-85NOK-26		11	1.15	1	5	1	0.060	4	136	0.10	0.21	0.05	1.40	14	1.33			
			42-85NOK-27		12	0.68	1	5	1	0.050	2	77	0.08	0.18	0.03	0.86	8	0.86			
			42-85NOK-28		4	0.57	1	5	1	0.020	2	51	0.10	0.27	0.04	2.09	30	1.85			
			42-85NOK-29		11	0.08	1	5	2	0.100	15	3	0.09	0.11	0.03	0.63	6	0.51			
			42-85NOK-29A		17	0.13	1	5	2	0.070	10	3	0.09	0.08	0.02	1.26	13	0.30			
63N02-4			42-85-K1D		15	0.26	8354	5	7	0.370	7	17	0.08	0.08	0.05	1.71	14	0.36			
			42-85-K1E		18	0.35	63	10	2	0.100	6	40	0.21	0.09	0.11	0.89	7	0.52			
			42-85-K4.1		22	0.18	10	9	3	0.070	10	3	0.07	0.11	0.04	0.72	7	1.14			
			42-85-K4.2		19	0.43	5	7	3	0.160	7	2	0.11	0.06	0.03	1.42	41	0.57			
			42-85-K4.3		6	0.29	12	5	1	0.130	12	13	0.10	0.09	0.01	0.86	4	0.94			
			42-85-K4.4		11	0.48	3	7	2	0.050	3	23	0.13	0.21	0.05	1.24	7	0.89			
			42-85-K4.5		11	0.37	1	5	2	0.050	2	42	0.16	0.17	0.02	0.87	5	0.79			
			42-85-K4.6		8	0.44	2	5	1	0.050	5	50	0.30	0.17	0.05	1.26	13	1.09			
			42-85-K4.7		16	0.33	2	5	1	0.060	3	40	0.16	0.16	0.03	0.82	5	0.93			
			42-85-K4.8		13	0.56	1	5	1	0.020	2	68	0.25	0.14	0.02	1.74	25	0.89			
			42-85-KS/50-51		16	0.16	1	9	4	0.030	14	2	0.07	0.07	0.07	2.13	28	0.59			
			42-85-K9.10		23	0.65	2	5	1	0.040	3	43	0.07	0.16	0.02	1.33	14	1.12			
			42-85-K10.10		9	0.88	1	5	1	0.010	2	27	0.03	0.27	0.05	2.49	40	2.77			
			42-85-K13.10		5	0.23	1	5	1	0.080	2	8	0.10	0.10	0.02	0.81	6	0.47			

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	B2 (ppm)	Cr (ppm)	Mg (%)	W (ppm)	U (ppm)	Th (ppm)	P (%)	La (ppm)	V (ppm)	Ti (%)	Na (%)	K (%)	Ca (%)	Sr (ppm)	Al (%)	Hg (ppb)	Se (ppm)	Te (ppm)
			42-85-K13.11		20	0.19	1	5	1	0.260	14	4	0.13	0.21	0.03	1.74	19	1.04			
			42-85-K13.12		10	0.10	1	8	3	0.090	13	1	0.04	0.04	0.03	1.22	8	0.50			
			42-85-K13.13		15	0.53	1	10	4	0.070	19	48	0.15	0.03	0.52	0.21	8	0.70			
			42-85-K13.14		10	0.14	1	5	2	0.120	14	2	0.07	0.09	0.01	1.35	15	0.55			
			42-85-K14.10		9	0.24	1	9	2	0.010	2	7	0.02	0.42	0.02	3.21	55	3.57			
			42-85-K36.10		32	0.73	1	5	1	0.020	2	51	0.09	0.20	0.03	1.77	7	1.18			
			42-85-K37.10		11	0.68	1	5	1	0.010	2	171	0.16	0.17	0.02	1.05	6	0.88			
			42-85-K37.11		6	0.73	1	5	1	0.010	2	155	0.16	0.19	0.01	1.25	9	0.95			
			42-85-K43.10		22	0.21	1	7	1	0.020	6	12	0.05	0.02	0.23	0.07	2	0.49			
			42-85-K43.11		16	0.02	10	6	4	0.010	2	3	0.01	0.05	0.15	0.01	2	0.21			
			42-85-K43.12		14	1.09	1	5	2	0.060	4	119	0.19	0.09	0.69	1.19	7	1.72			
			42-85-K50.10		10	0.24	3	6	1	0.300	7	5	0.06	0.11	0.02	1.58	12	0.59			
			42-85-K51.10		14	0.50	4	5	1	0.050	7	2	0.07	0.06	0.05	1.26	20	0.65			
			42-85-K55.10		20	0.20	23	6	3	0.060	12	3	0.09	0.13	0.14	1.47	20	0.84			
			42-85-K55.11		13	0.29	1	6	1	0.090	7	9	0.09	0.10	0.02	0.75	6	0.82			
			42-85-K224.2		3	0.11	1	5	1	0.080	2	3	0.02	0.04	0.02	0.30	4	0.41			
			42-85-K561		14	0.06	1	5	1	0.090	9	3	0.05	0.06	0.01	0.38	5	0.31			
			42-85-K610		41	0.63	1	5	1	0.020	2	32	0.10	0.27	0.03	1.76	18	1.64			
			42-85-K611		12	0.12	1	5	1	0.070	5	3	0.06	0.09	0.01	1.63	13	0.43			
			42-85-K612		8	0.80	1	5	1	0.040	2	112	0.25	0.30	0.04	1.81	14	1.33			
			42-85-K613		84	0.94	1	5	1	0.010	2	23	0.03	0.46	0.05	5.61	114	5.35			
			42-85-K614		23	0.42	1	5	1	0.020	2	28	0.06	0.26	0.02	2.65	48	2.61			
			42-85-K615		15	0.20	1	5	3	0.020	15	2	0.09	0.08	0.17	1.45	22	0.74			
			42-85-K616		9	0.67	2	5	1	0.080	2	77	0.16	0.19	0.02	1.33	12	0.93			
			42-85-K617		22	0.86	2	9	2	0.010	2	25	0.03	0.53	0.05	4.87	110	4.57			
			42-85-K618		8	0.73	3	5	1	0.010	2	116	0.10	0.15	0.03	2.37	114	1.98			
			42-85-K619		10	0.23	3	5	1	0.050	6	2	0.08	0.13	0.05	1.13	13	0.67			
			42-85-K620		5	0.51	1	5	1	0.020	2	97	0.14	0.15	0.02	0.88	5	0.65			
			42-85-K621		14	0.50	1	5	1	0.010	2	18	0.03	0.68	0.04	5.17	123	5.43			
			42-85-TR-8		12	0.19	3	5	2	0.050	11	2	0.06	0.10	0.08	0.93	15	0.80			
			42-85-TR-9		11	0.15	1	5	3	0.020	11	2	0.05	0.07	0.03	1.20	18	0.42			
			42-85-TR-10		8	0.14	2	5	2	0.080	9	1	0.07	0.10	0.03	1.40	14	0.49			
			42-85-TR-11		6	0.12	1	5	2	0.250	3	9	0.06	0.09	0.02	1.09	11	0.41			
			42-85-TR-12		6	0.24	6	5	2	0.300	7	4	0.16	0.19	0.03	1.88	14	0.85			
63N02-71			65-86-GC-WL-127		77	1.36	1	5	3	0.068	16	161	0.15	0.07	0.12	0.48	22	1.72			
63N02-73			65-86-GC-WL-126-1		40	0.42	1	5	2	0.066	6	35	0.05	0.14	0.12	1.32	26	1.45			
			65-86-GC-WL-126-2		47	0.05	1	5	2	0.095	18	8	0.01	0.04	0.05	0.67	38	0.25			
63N02-76			65-86-GC-WL-20A		18	1.26	1	5	5	0.007	16	18	0.08	0.03	0.05	0.36	15	1.71			
			65-86-GC-WL-20B		24	0.60	1	5	2	0.099	34	23	0.04	0.03	0.03	0.34	6	1.21			
			65-86-GC-WL-20C		37	0.24	1	5	1	0.042	9	17	0.03	0.02	0.01	0.36	8	0.56			

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	B2 (ppm)	Cr (ppm)	Mg (%)	W (ppm)	U (ppm)	Th (ppm)	P (%)	La (ppm)	V (ppm)	Ti (%)	Na (%)	K (%)	Ca (%)	Sr (ppm)	Al (%)	Hg (ppb)	Se (ppm)	Te (ppm)
			65-86-GC-WL-20D		129	1.11	1	5	1	0.013	2	21	0.02	0.09	0.05	1.14	26	1.76			
			65-86-GC-WL-20E		118	1.89	1	5	1	0.018	6	62	0.06	0.06	0.02	0.99	9	1.55			
			65-86-GC-WL-20F		20	0.26	1	5	2	0.008	7	2	0.06	0.03	0.13	0.12	2	0.67			
			65-86-GC-WL-20G		22	0.33	1	5	2	0.021	15	23	0.06	0.05	0.09	0.41	4	0.86			
			65-86-GC-WL-20H		25	0.61	1	5	2	0.035	22	68	0.10	0.04	0.17	0.53	16	1.35			
			65-86-GC-WL-20I		21	0.57	1	5	2	0.049	19	48	0.13	0.08	0.35	0.76	19	1.44			
			65-86-GC-WL-67-1		31	0.38	1	5	3	0.062	16	22	0.04	0.05	0.09	0.61	5	0.93			
			65-86-GC-WL-67-2		32	0.31	1	5	3	0.048	40	36	0.06	0.05	0.05	0.61	4	0.75			
			65-86-GC-WL-67-3		71	0.35	1	5	4	0.050	31	43	0.07	0.05	0.09	0.48	7	0.70			
			65-86-GC-WL-67-4		29	0.11	1	5	2	0.091	19	16	0.03	0.05	0.03	1.63	14	0.59			
			65-86-GC-WL-67-5		85	0.92	1	5	1	0.021	3	60	0.06	0.15	0.08	2.74	17	1.90			
			65-86-GC-WL-67-6		65	0.63	1	5	1	0.016	3	19	0.02	0.06	0.02	1.09	5	0.59			
63N02-88			65-89-BAT-23A		8	0.47	1	5	1	0.018	3	6	0.05	0.01	0.25	0.05	1	0.64			
63N02-99			65-89-BAT-13		8	0.38	1	5	1	0.039	2	29	0.02	0.04	0.04	0.39	3	0.41			
63N02-102			65-89-BAT-12A		33	1.63	1	5	1	0.020	2	156	0.18	0.03	0.81	0.05	2	2.13			
63N02-104			65-89-BAT-14A		13	0.96	4	5	1	0.013	2	46	0.02	0.25	0.10	3.31	71	5.30			
63N02-105			65-89-BAT-15A		12	0.96	1	5	1	0.037	3	32	0.04	0.03	0.17	0.81	9	1.81			
			65-89-BAT-15C		9	1.39	2	5	1	0.025	3	131	0.02	0.19	0.09	3.24	71	4.90			
			65-89-BAT-15E		9	0.59	1	5	1	0.030	3	15	0.04	0.04	0.20	0.33	7	1.45			
63N02-108			65-89-BAT-1A		41	0.92	1	5	3	0.050	12	89	0.12	0.06	0.55	0.30	17	1.88			
			65-89-BAT-1B		27	1.56	1	5	2	0.058	9	101	0.17	0.10	0.99	0.53	41	2.84			
			65-89-BAT-1C		27	1.34	1	5	3	0.050	10	102	0.17	0.11	0.71	0.65	51	2.85			
63N02-111			65-87-BATGC-2		11	0.43	1	5	1	0.029	2	79	0.07	0.10	0.06	0.56	3	0.62			
			65-87-BATGC-3		14	0.10	1	7	2	0.098	7	10	0.05	0.04	0.05	1.75	37	1.42			
			65-87-BATGC-4		65	0.82	1	5	1	0.010	2	27	0.02	0.35	0.04	3.60	94	4.47			
			65-87-BATGC-7		69	1.03	1	5	1	0.013	2	45	0.04	0.22	0.06	2.71	59	3.20			
			65-87-BATGC-8A		19	0.65	1	6	3	0.031	4	22	0.05	0.04	0.18	0.36	4	1.32			
			65-87-BATGC-8B		20	0.35	1	5	2	0.054	6	44	0.06	0.07	0.19	0.10	25	0.94			
			65-87-BATGC-9A		12	0.15	1	5	2	0.079	5	18	0.07	0.09	0.11	2.07	32	2.87			
			65-87-BATGC-9B		14	0.10	1	5	1	0.125	6	19	0.06	0.05	0.04	2.38	18	1.72			
			65-87-BATGC-9C		18	0.28	1	5	2	0.071	4	26	0.06	0.04	0.28	0.77	16	1.67			
			65-87-BATGC-9D		11	0.77	1	5	2	0.023	5	38	0.11	0.03	1.13	0.18	3	2.11			
			65-87-BATGC-9E		21	0.20	1	5	2	0.034	4	21	0.06	0.19	0.13	3.28	66	4.87			
			65-87-BATGC-9F		12	0.99	1	5	2	0.017	6	21	0.10	0.04	0.83	0.09	2	1.29			
			65-87-BATGC-10		41	0.51	1	5	1	0.014	2	19	0.02	0.29	0.04	4.08	96	4.53			
			65-87-BATGC-12		45	0.57	1	5	1	0.017	2	23	0.02	0.13	0.04	4.91	89	5.30			
63N02-113			65-87-BATGC-1		71	1.09	1	5	3	0.048	12	95	0.18	0.03	0.46	0.20	11	2.06			
63N02-116			65-89-BAT-24		15	0.83	1	5	1	0.012	2	66	0.06	0.02	0.30	0.19	3	0.77			
63N02-118			65-89-BAT-5		18	0.12	1	5	1	0.027	3	28	0.12	0.04	0.05	0.29	8	0.43			
63N02-119			65-87-BATGC-14A		146	1.71	1	5	1	0.004	2	49	0.03	0.09	0.07	0.05	3	1.86			

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	B2 (ppm)	Cr (ppm)	Mg (%)	W (ppm)	U (ppm)	Th (ppm)	P (%)	La (ppm)	V (ppm)	Ti (%)	Na (%)	K (%)	Ca (%)	Sr (ppm)	Al (%)	Hg (ppb)	Se (ppm)	Te (ppm)
			65-87-BATGC-14B		59	1.23	1	5	1	0.002	5	27	0.09	0.06	0.83	0.02	3	1.66			
			65-87-BATGC-14C		23	1.87	1	5	1	0.015	2	123	0.13	0.05	0.74	0.08	4	3.16			
			65-89-BAT-25A		20	1.33	1	5	1	0.019	2	30	0.13	0.03	0.69	0.04	3	1.86			
			65-89-BAT-27A		7	2.17	1	5	1	0.017	2	66	0.17	0.05	1.00	0.04	4	2.49			
63N02-121			65-89-BAT-6A		17	1.25	1	5	1	0.040	2	126	0.08	0.02	0.29	0.15	4	1.53			
			65-89-BAT-6C		12	0.19	1	5	1	0.013	2	18	0.02	0.01	0.04	0.03	2	0.27			
63N02-124			65-89-BAT-26A		12	1.02	1	5	1	0.026	2	32	0.04	0.02	0.18	0.26	5	0.93			
63N02-125			65-89-BAT-4		9	0.28	1	5	1	0.015	2	46	0.03	0.06	0.08	0.33	7	0.45			
63N02-127			65-89-BAT-3A		14	0.49	1	5	1	0.046	2	58	0.07	0.03	0.14	0.21	7	0.67			
			65-89-BAT-3C		14	0.10	1	5	1	0.054	6	24	0.14	0.15	0.02	1.47	17	1.62			
63N02-128			65-89-BAT-2A		16	0.57	2	5	1	0.025	2	108	0.17	0.22	0.30	1.97	48	3.05			
63N02-135			65-89-BAT-16A		8	0.39	1	5	1	0.051	4	7	0.04	0.10	0.05	11.12	103	4.43			
			65-89-BAT-17A		27	0.42	1	5	2	0.059	8	39	0.15	0.09	0.14	2.11	33	1.27			
63N02-136			65-89-BAT-18A		32	0.95	1	5	3	0.054	8	163	0.04	0.01	0.24	0.89	4	1.68			
			65-89-BAT-19A		16	0.25	1	5	1	0.043	2	13	0.02	0.23	0.03	5.91	107	5.12			

nd = not detected; a blank means not determined

APPENDIX II: SILICATE WHOLE ROCK ANALYSES

Rock samples were collected as single or multiple 1-2 kg samples from representative outcrops. These samples were analyzed by Manitoba Energy and Mines Analytical Laboratory (Winnipeg) by fusing 0.2 g of rock powder with a mixed flux of Li metaborate and Li tetraborate and digesting this mixture in 5% HCl. This solution was made up to 100 ml with deionized water. The oxides were determined by AAS except for Si and P which were determined colourimetrically. S and CO_2 were determined on the Leco sulphur analyzer and Leco carbon analyzer, respectively. LOI was determined by Leco induction furnace after 15 minutes at 1000° C.

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	LOI	S	CO_2	TOTAL
63N02-2			42-84-NOK-1A	64.5	11.2	12.5	4.7	0.5	4.5	0.4	1.0	0.15	0.12	0.4	0.78		100.0
	6092016	406060	42-84-NOK-1B	66.2	11.0	7.9	7.4	0.9	3.4	1.0	0.8	0.15	0.09	1.0	0.12		99.8
			42-84-NOK-1C	65.2	10.2	10.2	7.7	0.6	4.4	0.4	0.7	0.15	0.13	0.7	0.18		100.4
			42-84-NOK-1D	56.9	12.5	11.1	10.3	0.6	4.7	0.5	1.3	0.37	0.15	0.8	0.01		99.2
			42-84-NOK-1F	46.8	10.8	28.4	6.4	2.5	2.0	0.1	3.3	0.15	0.37	1.0	0.10		101.8
			42-84-NOK-2	67.0	6.6	12.7	3.5	0.6	2.5	0.2	0.7	0.31	0.09	4.8	3.34		99.0
			42-84-NOK-3	64.6	8.7	13.8	3.9	0.5	3.2	0.2	0.9	0.24	0.10	3.0	3.09		99.1
			42-84-NOK-3A	78.9	6.4	7.1	4.5	0.3	1.9	0.3	0.5	0.09	0.07	0.6	0.14		100.7
			42-84-NOK-3B	59.3	9.2	15.0	4.1	0.7	3.3	0.1	1.3	0.32	0.12	7.0	4.88		100.4
			42-84-NOK-3C	55.9	9.4	16.8	5.5	0.6	3.7	0.2	1.3	0.42	0.15	5.2	4.03		99.2
			42-84-NOK-4A	55.5	9.8	16.8	11.2	1.2	2.6	0.3	1.8	0.48	0.18	0.7	0.01		100.5
			42-84-NOK-4B	66.7	11.0	7.0	7.9	0.5	3.7	0.4	0.8	0.14	0.09	1.8	0.01		100.0
			42-84-NOK-4C	68.1	9.6	7.1	9.8	0.5	2.1	0.2	0.8	0.12	0.06	2.3	0.01		100.7
			42-84-NOK-5	66.9	10.2	8.4	5.6	0.5	5.0	0.4	0.8	0.15	0.10	0.5	0.89		98.6
			42-84-NOK-5A	44.5	11.7	27.6	6.9	4.4	2.4	0.2	2.9	0.07	0.32	0.1	0.12		101.1
			42-84-NOK-6	42.5	9.8	30.6	7.7	4.1	1.9	0.3	3.5	0.05	0.33	0.6	0.26		101.4
			42-84-NOK-7I	69.0	10.7	8.3	5.4	0.6	3.5	0.5	0.8	0.10	0.10	1.0	0.01		100.0
			42-84-NOK-7A	68.0	10.9	6.3	6.1	0.7	5.6	0.3	1.2	0.17	0.08	1.3	0.07		100.7
			42-84-NOK-7B	67.1	10.7	11.5	3.7	0.7	4.2	0.2	0.7	0.11	0.12	1.6	0.01		100.6
			42-84-NOK-7E	66.9	10.4	11.5	3.5	0.4	4.3	0.3	0.8	0.10	0.12	0.5	0.07		98.8
			42-84-NOK-7G	63.2	11.3	13.1	4.9	0.5	5.2	0.3	1.3	0.16	0.13	0.5	0.05		100.6
			42-84-NOK-8	47.0	13.2	10.8	11.6	12.9	1.4	0.2	0.6	0.01	0.18	0.2	0.01		98.1
			42-84-NOK-9	48.3	15.1	8.1	13.7	11.6	1.1	0.2	0.5	0.04	0.11	0.6	0.01		99.4
			42-85-NOK-2A	60.0	17.4	4.8	6.6	2.1	6.5	0.4	0.7	0.38	0.07	0.8	0.00	0.74	99.8
			42-85-NOK-3A	46.3	14.3	10.3	11.2	13.5	1.4	0.4	0.4	0.03	0.17	1.0	0.00	0.22	99.0
			42-85-NOK-3B	65.4	11.1	10.5	4.6	0.5	4.2	0.4	0.7	0.14	0.11	1.3	0.11	1.10	99.0
			42-85-NOK-3C	64.0	11.4	12.1	4.9	0.1	4.7	0.3	0.8	0.21	0.15	0.9	0.04	1.44	99.6
			42-85-NOK-3D	68.7	7.3	11.6	2.1	0.0	3.2	0.1	0.6	0.28	0.10	3.2	1.81	1.40	97.2
			42-85-NOK-3E	58.5	11.0	20.2	4.0	0.2	4.2	0.3	1.1	0.38	0.22	0.2	0.12	1.06	100.3
			42-85-NOK-3F	53.0	10.1	19.4	6.3	0.7	4.3	0.2	1.6	0.61	0.25	1.9	1.00	0.94	98.4
			42-85-NOK-3G	57.8	10.5	14.9	7.9	0.6	3.7	0.5	1.1	0.42	0.18	1.4	0.00	1.80	99.0
			42-85-NOK-3H	66.8	10.8	8.1	6.8	0.3	3.8	0.6	0.7	0.12	0.10	2.0	0.01	2.05	100.1
			42-85-NOK-4B	68.5	11.2	9.3	2.1	0.3	4.7	0.4	0.6	0.08	0.11	1.2	1.23	1.78	98.5
			42-85-NOK-4C	66.6	12.0	10.6	1.6	0.2	5.0	0.6	0.8	0.12	0.11	1.5	1.63	1.78	99.1
			42-85-NOK-4D	66.2	11.4	13.0	3.1	0.4	4.3	0.2	0.8	0.20	0.14	1.0	0.72	1.34	100.7
			42-85-NOK-5	47.7	15.3	8.1	13.3	12.0	1.2	0.4	0.3	0.02	0.13	0.9	0.00	0.36	99.4
			42-85-NOK-6	55.0	19.1	7.2	5.8	3.1	5.9	1.0	0.7	0.39	0.06	1.2	0.01	1.08	99.5
			42-85-NOK-7	50.0	17.8	8.3	10.8	8.1	1.9	0.2	0.3	0.02	0.15	1.2	0.03	0.88	98.8
			42-85-NOK-8	47.9	21.0	5.7	14.7	7.7	1.5	0.1	0.2	0.01	0.09	1.7	0.00	1.30	100.6
			42-85-NOK-9	47.4	15.5	8.0	13.4	12.5	1.0	0.2	0.3	0.02	0.14	1.1	0.00	0.24	99.6
			42-85-NOK-10	48.4	13.8	10.4	11.0	12.4	1.5	0.3	0.5	0.04	0.15	0.9	0.03	0.42	99.4

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	LOI	S	CO_2	TOTAL
			42-85-NOK-11A	61.2	11.1	10.8	7.6	0.7	3.6	0.6	1.1	0.37	0.16	1.2	0.07	1.74	98.4
			42-85-NOK-11B	65.8	10.6	11.5	2.1	0.1	4.4	0.1	0.7	0.14	0.09	1.7	1.59	1.52	97.2
			42-85-NOK-11C	65.1	11.3	10.7	4.3	0.2	4.8	0.2	0.7	0.11	0.12	0.7	0.97	1.52	98.2
			42-85-NOK-11D	64.7	11.1	10.1	6.5	0.4	3.7	0.5	0.9	0.19	0.12	0.7	0.10	1.50	98.9
			42-85-NOK-12	48.2	19.2	7.0	14.9	9.1	1.5	0.3	0.2	0.02	0.09	1.1	0.00	0.64	101.6
			42-85-NOK-14	63.5	18.2	5.6	5.0	2.1	3.1	1.8	0.4	0.19	0.06	0.6	0.05	0.68	100.6
			42-85-NOK-15	48.7	11.4	22.0	10.4	2.8	2.2	0.3	2.9	0.20	0.33	0.2	0.00	0.44	101.4
			42-85-NOK-16	67.1	11.9	7.6	6.4	0.6	3.8	0.6	0.7	0.11	0.10	0.6	0.00	0.84	99.5
			42-85-NOK-17	56.1	10.4	17.4	9.9	0.9	3.3	0.4	2.1	0.45	0.35	0.6	0.02	0.94	101.9
			42-85-NOK-18	53.9	11.0	24.6	4.6	0.8	3.1	0.3	1.7	0.63	0.42	-0.2	0.12	0.40	101.1
			42-85-NOK-19	49.5	15.1	9.7	12.0	10.7	1.7	0.2	0.5	0.03	0.19	0.9	0.01	0.48	100.5
			42-85-NOK-20	49.8	17.8	9.8	11.1	8.0	2.3	0.5	0.7	0.10	0.20	0.7	0.00	0.30	101.0
			42-85-NOK-21	46.5	11.8	24.0	9.2	4.8	2.4	0.3	3.0	0.05	0.33	0.5	0.38	0.54	102.9
			42-85-NOK-23	48.5	14.6	10.7	12.1	11.2	1.3	0.3	0.6	0.04	0.20	0.6	0.05	0.28	100.1
			42-85-NOK-24	50.1	18.8	7.2	14.2	8.9	1.6	0.3	0.3	0.02	0.17	0.7	0.00	0.30	102.3
			42-85-NOK-27	56.0	15.9	10.6	7.9	6.1	3.0	0.2	1.1	0.11	0.17	0.5	0.09	0.40	101.6
			42-85-NOK-28	53.8	14.8	12.3	10.4	5.4	2.2	0.3	1.1	0.07	0.15	0.8	0.02	0.54	101.3
			42-85-NOK-29	63.5	11.5	14.4	4.1	0.4	3.9	0.2	1.0	0.23	0.15	1.6	0.92	0.80	101.0
63N02-04			42-85-K55.10	68.7	10.1	10.8	5.2	0.7	2.6	0.5	0.6	0.13	0.13	0.3	0.88	0.29	99.8
			42-85-K55.11	49.4	14.8	22.5	7.5	2.5	2.7	0.2	2.6	0.21	0.31	0.1	0.34	0.29	102.8
			42-85-K43.12	55.4	15.0	13.9	6.8	3.8	2.6	1.4	1.0	0.15	0.20	0.9	0.80	0.21	101.2
			42-85-K51.10	65.2	12.9	8.9	6.2	1.2	3.0	0.9	0.7	0.12	0.09	1.2	1.36	0.43	100.4
			42-85-K4.1	65.0	10.0	15.6	3.1	0.3	2.8	0.3	0.7	0.14	0.12	1.9	2.27	2.57	100.0
			42-85-K4.2	60.7	10.2	12.7	10.3	1.3	2.3	0.2	1.2	0.35	0.13	0.7	0.66	0.03	100.1
			42-85-K4.3	44.6	11.5	29.8	5.9	3.1	1.2	0.1	2.9	0.28	0.46	1.3	1.74	1.94	101.1
			42-85-K4.4	43.8	12.6	24.8	9.4	4.6	2.2	0.2	2.0	0.12	0.32	-0.2	0.14	0.05	100.0
			42-85-K4.5	47.6	14.5	20.6	7.0	3.4	3.5	0.2	2.9	0.12	0.22	-0.1	0.42	0.24	100.0
			42-85-K4.6	43.7	12.4	26.0	8.6	3.6	1.6	0.2	3.3	0.12	0.30	0.9	0.41	0.52	100.7
			42-85-K4.7	47.7	15.2	23.6	6.1	3.2	3.0	0.1	2.7	0.14	0.25	-0.6	0.27	0.34	102.0
			42-85-K4.8	46.5	14.5	17.7	10.8	4.6	2.5	0.2	2.7	0.05	0.19	0.7	0.03	0.86	100.4
			42-85-K13.10	46.0	11.7	25.8	9.2	3.1	2.1	0.2	3.0	0.18	0.28	0.0	0.00	0.20	101.6
			42-85-K13.11	51.8	10.8	27.4	5.7	0.9	2.1	0.1	1.6	0.56	0.38	-1.1	0.21	0.66	101.3
			42-85-K13.12	64.3	11.6	13.7	5.0	0.4	3.2	0.4	0.8	0.19	0.15	0.5	0.05	1.00	100.2
			42-85-K13.13	68.3	14.8	6.7	3.0	1.8	4.9	0.8	0.6	0.16	0.06	-0.2	0.00	0.28	101.1
			42-85-K13.14	54.3	15.6	14.6	8.6	1.2	3.5	0.2	1.1	0.25	0.20	0.6	0.29	0.64	100.2
			42-85-K-TR-8	68.9	11.7	9.8	5.6	0.7	2.6	0.4	0.7	0.10	0.12	0.1	0.06	0.42	100.7
			42-85-KTR-9	72.3	10.9	6.9	5.1	0.4	3.2	0.4	0.5	0.05	0.05	0.9	0.01	1.06	100.7
			42-85-KTR-10	64.8	11.9	12.1	6.3	0.7	3.2	0.3	0.9	0.17	0.11	0.6	0.12	0.86	101.1
			42-85-KTR-11	51.4	10.9	20.1	7.1	1.0	3.4	0.1	1.6	0.59	0.20	3.7	2.10	1.88	100.1
			42-85-KTR-12	50.3	12.2	20.2	8.6	1.5	2.9	0.2	2.0	0.68	0.30	1.0	1.06	1.02	99.9
			42-85-K224.2	51.8	9.8	17.3	2.7	0.2	3.3	0.3	0.9	0.18	0.06	14.4	4.71	4.10	100.9

Mineral Occurrence	UTM Coordinates Northing	Easting	Sample Numbers	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	LOI	S	CO_2	TOTAL
			42-85-K37.10	45.9	13.9	20.4	9.8	6.5	2.2	0.2	1.9	0.04	0.21	0.0	0.26	0.28	101.1
			42-85-K37.11	47.0	14.1	17.2	10.8	6.8	2.3	0.2	1.4	0.03	0.20	0.0	0.07	0.34	100.0
			42-85-K-1D	54.3	9.0	17.0	8.6	2.3	3.0	0.3	1.5	0.70	0.25	0.6	1.80	1.70	97.6
			42-85-K-1E	56.5	14.3	11.7	7.1	2.5	4.2	0.5	2.0	0.22	0.15	0.2	0.83	1.02	99.4
			42-85-K-561	63.4	11.5	11.6	4.9	0.0	4.4	0.1	1.0	0.20	0.10	1.7	0.83	1.76	98.9
			42-85-K-610	49.1	15.5	11.6	12.2	7.8	2.2	0.2	0.8	0.05	0.17	0.6	1.76	0.24	100.2
			42-85-K-611	65.4	11.0	11.7	5.9	0.5	3.6	0.3	0.9	0.15	0.13	0.9	0.05	1.10	100.5
			42-85-K-612	45.5	12.0	23.6	8.8	5.0	2.3	0.2	2.4	0.09	0.31	-0.1	0.08	0.28	100.2
			42-85-K-613	47.9	16.4	7.8	14.5	10.5	1.1	0.2	0.4	0.02	0.13	0.7	0.15	0.34	99.7
			42-85-K-614	48.0	15.2	13.4	12.2	7.4	1.8	0.2	0.9	0.06	0.21	0.3	0.01	0.30	99.7
			42-85-K-615	69.6	11.3	7.7	5.1	0.4	2.8	1.0	0.6	0.06	0.06	1.1	0.03	1.20	99.7
			42-85-K-616	49.5	13.7	19.1	8.1	3.8	3.2	0.3	2.3	0.19	0.21	0.5	0.06	0.54	100.9
			42-85-K-617	48.0	16.0	8.7	14.0	10.3	1.3	0.2	0.4	0.02	0.14	0.6	0.10	0.34	99.7
			42-85-K-618	45.1	13.4	16.9	12.4	8.9	1.1	0.2	1.2	0.03	0.19	0.5	0.07	0.34	99.9
			42-85-K-619	67.9	11.2	9.4	5.6	0.9	3.0	0.4	0.7	0.11	0.10	0.4	0.00	0.58	99.7
			42-85-K-620	47.8	13.5	18.5	9.9	5.8	2.4	0.2	2.0	0.05	0.24	0.2	0.06	0.18	100.6
			42-85-K-621	48.9	18.2	8.3	13.8	8.7	1.5	0.2	0.5	0.01	0.15	0.6	0.03	0.18	100.9
			42-85-K9.10	49.0	14.8	14.7	10.5	7.1	2.2	0.2	0.8	0.09	0.21	0.1	0.02	0.44	99.7
			42-85-K10.10	47.2	16.6	11.0	12.1	9.8	1.8	0.4	0.3	0.02	0.15	0.7	0.01	0.38	100.1
			42-85-K14.10	49.5	17.9	8.9	12.8	8.4	1.7	0.2	0.4	0.02	0.14	0.3	0.03	0.34	100.3
			42-85-K36.10	49.0	15.0	13.6	11.1	7.3	2.5	0.3	0.8	0.06	0.19	0.4	0.03	0.64	100.3
			42-85-K50.10	50.1	11.0	23.6	8.6	2.6	2.1	0.2	2.2	0.70	0.25	-0.1	0.04	0.44	101.4
			42-85-KS/50-51	68.6	11.0	8.4	7.2	0.5	2.3	0.3	0.6	0.07	0.07	1.2	0.01	1.56	100.2
63N02-76			65-86-GC-WL-67-5	49.4	16.0	10.9	10.7	5.6	2.0	1.3	0.4	0.07	0.21		0.04	1.40	100.5
			65-86-GC-WL-67-6	50.8	12.8	10.0	11.0	9.4	2.4	0.6	0.3	0.06	0.19		0.01	0.80	100.3
			65-86-GC-WL-20B	55.1	8.5	25.3	2.7	3.4	0.1	0.1	0.2	0.28	0.32		2.88	0.57	101.3
			65-86-GC-WL-20D	49.4	12.5	12.2	10.2	11.4	0.7	1.0	0.3	0.05	0.20		0.01	0.30	101.1
			65-86-GC-WL-20E	55.1	10.4	11.6	7.6	8.6	1.4	1.2	0.4	0.07	0.19		0.01	0.78	100.0

APPENDIX III: ADDITIONAL DIAMOND DRILL HOLES WITHOUT LOGS OR DOCUMENTED MINERALIZATION

Assessment File Number	DDH	Figure Number
91598	N84 N86 N88 N90 N94 N96	8-1
91598	N83	26-1
90649	AKE 5 AKE 6	58-1
90666	No. 4	59-1
91573	TUG 192	100-1

ASSESSMENT FILE 91598:

AREA: DDH N84, N86, N88, N90, N94 and N96: south of Elken Lake (Fig. 8-1); DDH N83: 300 metres west of Star Lake (Fig. 26-1)

ACCESS: Bush aircraft to Star Lake, and traverse.

AIRPHOTO: A26369-70

EXPLORATION SUMMARY:

The earliest recorded staking of this locality was by Phillip Sherlett and members of the Sherritt Gordon Mines Ltd. staff who staked the ELKEN Group in 1928. After the staking of NOK 432-434, 481-482 over the occurrence area by HBED, a loop-frame survey was performed during the winter of 1957-58 (A.F. 91598). This survey identified several conductors; some up to 400 m in length. DDH N84, N86, N88, N90, N94 and N96 (no logs available) were drilled in 1959 to test some of these anomalies (A.F. 91598; Fig. 8-1). The EM survey also delineated several single line anomalies in the area that were tested with DDH N83 (log not submitted) in 1959 (Fig. 26-1). An airborne EM survey in 1972 by Sherritt Gordon Mines Ltd. defined two strong anomalies on one line (A.F. 91695). An airborne EM and magnetometer survey was performed in 1979 for Elken Exploration Ltd. (A.F. 92921). The area was staked as ANGIE 2, 3 for C. Dearin in 1983. The claims were transferred to Noko Resources Inc. (current holder, 1989) a month later.

GEOLOGICAL SETTING:

The area is underlain by Sherridon Metamorphic Suite quartzofeldspathic gneiss (Zwanzig *et al.*, 1988; Fig. 8-1; Fig. 26-1).

MINERALIZATION:

Not known.

GEOCHEMICAL DATA:

None.

REFERENCES:

Assessment File 91598, 91695, 92921
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

ASSESSMENT FILE 90649:

AREA: Drury Lakes (Fig. 58-1).
ACCESS: Bush aircraft to Drury Lakes.

EXPLORATION SUMMARY:

The area was staked by HBED in 1970. A HLEM survey identified a weak 200 m long conductor. DDH AKE 5 and 6 (116 m total length) were drilled in 1971 (A.F. 90649; Fig. 58-1).

GEOLOGICAL SETTING:

The area is underlain by tonalite, granodiorite and/or granite (Zwanzig *et al.*, 1988; Fig. 58-1). Both drill holes intersected biotite granite.

MINERALIZATION:

None.

AIRPHOTO: A26365-36

GEOCHEMICAL DATA:

None.

REFERENCES:

Assessment File 90649
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

ASSESSMENT FILE 90666:

AREA: Northwest shore of Cameron Lake (Fig. 59-1).
ACCESS: Bush aircraft to Walton Lake, and traverse.

AIRPHOTO: A26326-228

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1957. HBED performed a loop-frame EM survey during the winter of 1957-58 (A.F. 90665, 91598). Minerals Technology Corporation (M.T.C.) completed DDH 4 (106 m) in 1968 (A.F. 90666). M.T.C. performed geological, soil geochemistry and EM geophysical surveys plus trenching on the property later that year (A.F. 90666). The area around the occurrence was included in airborne EM and magnetometer surveys performed by Sherritt Gordon Mines Ltd. in 1972 and Shell Canada Resources Ltd. in 1980 (A.F. 91695, 92513).

GEOLOGICAL SETTING:

The area is underlain by Burntwood River Metamorphic Suite biotite-feldspars-quartz ± garnet ± graphite ± sillimanite ± cordierite paragneiss (Zwanzig *et al.*, 1988; Fig. 59-1). DDH 4 intersected biotite gneiss (with up to 6 mm wide hornblende bands), quartzite and impure quartzite with variable amounts of biotite and garnet.

MINERALIZATION:

None recorded.

GEOCHEMICAL DATA:

The summary for assessment work indicates Cu values were not encountered in DDH 4.

REFERENCES:

Assessment Files 90665, 90666, 91598, 91695, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.

ASSESSMENT FILE 91573:

AREA: 2 km north of Limestone Point Lake (Fig. 100-1).

ACCESS: Bush aircraft to Limestone Point Lake or Craik Lake, and traverse.

AIRPHOTO: A26365-239

EXPLORATION SUMMARY:

The vicinity of the occurrence has been staked intermittently since 1959. A HLEM survey performed during the winter of 1959-60 by HBED defined a 100 m long anomaly in the area around the occurrence (A.F. 91573). DDH TUG 192 was drilled (log not available) in 1960 to test this anomaly (A.F. 91573). An airborne EM and magnetometer survey was performed in 1980 for Shell Canada Resources Ltd. (A.F. 92513).

GEOLOGICAL SETTING:

The area is underlain by metagreywacke-derived metatexite of the Burntwood River Metamorphic Suite (Zwanzig *et al.*, 1988; Fig. 101-1).

MINERALIZATION:

Unknown. A short (100 metre) EM anomaly has apparently been drill tested, but the log is not available (A.F. 91573).

GEOCHEMICAL DATA:

None.

REFERENCES:

Assessment Files 91573, 92513
Manitoba Energy and Mines, Minerals Division.

Zwanzig, H.V., Elias, P. and Arkos, G.
1988: Batty Lake; Manitoba Energy and Mines, Preliminary Map 1988K-2, 1:50 000.